ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36334
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD75148

<400> 36334
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36335
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD75158

<400> 36335
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36336
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD84494

<400> 36336
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gguugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36337
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD84495

<400> 36337
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36338
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD84496

<400> 36338
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36339
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD84497

<400> 36339
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36340
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADD84498

<400> 36340

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uguauagguu aucaugcgaa caauucaaca gacacuguag ucacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36341
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD84499

<400> 36341
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcuaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acagaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugauggu gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<212> RNA
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hemagglutinin__InfluenzaA__ADD96766

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36346
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADD96796

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugaaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36347
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96806

<400> 36347

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gacuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36348
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96816

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36349
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96826

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gauggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cgcagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36350
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96836

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36351
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96846

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacuagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36352
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96856

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36353
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96886

<400> 36353
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagca 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36354
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96896

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36355
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96906

<400> 36355
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauaa augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggcuauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36356
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96916

<400> 36356
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauaa augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36357
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96926

<400> 36357
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuauaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36358
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADD96936

<400> 36358

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaauuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36359
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96946

<400> 36359
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu caguaucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aagaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36360
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96956

<400> 36360
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagucu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36361
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96976

<400> 36361
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36362
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD96986

<400> 36362
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36363
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97035

<400> 36363
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36364
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97045

<400> 36364
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36365
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97055

<400> 36365

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36366
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADD97123

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36367
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADD97161

<400> 36367
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccacu gcauuuaggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaaau cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaaaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36368
<211> 1701
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__ADD97171

<400> 36368
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaguc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36369
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcugagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36370
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36371
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97211

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36372
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97231

<400> 36372
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36373
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97241

<400> 36373
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36374
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97251

<400> 36374
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36375
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97261

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcugagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36376
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADD97271

<400> 36376

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcggcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36377
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97281

<400> 36377
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaguc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36378
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97291

<400> 36378
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36379
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97311

<400> 36379
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuauugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaaauauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacauccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36380
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97321

<400> 36380
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36381
<211> 1701
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__ADD97331

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36382
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADD97341

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36383
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97351

<400> 36383

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97361

<400> 36384
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36385
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36386
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97381

<400> 36386
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36387
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97391

<400> 36387
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

ccuaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 36388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97411

<400> 36388
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36389
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97421

<400> 36389
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36390
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97431

<400> 36390
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97441

<400> 36391
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucaa aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97451

<400> 36392
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacug guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97461

<400> 36393
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADD97471

<400> 36394

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36395
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97481

<400> 36395
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaagaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97491

<400> 36396
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg aagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacaagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36397
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97501

<400> 36397
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg aagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacaagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97511

<400> 36398
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36399
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97531

<400> 36399
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuauugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaaauauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36400
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97541

<400> 36400
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucauacugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cacauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36401
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97551

<400> 36401

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97561

<400> 36402
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97571

<400> 36403
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucacu auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97581

<400> 36404
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36405
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97591

<400> 36405
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97688

<400> 36406
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36407
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97698

<400> 36407
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97888

<400> 36408
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36409
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97898

<400> 36409
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36410
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97908

<400> 36410
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36411
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97918

<400> 36411
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADD97928

<400> 36412

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg uuggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uucaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36413
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97938

<400> 36413
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaugac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucaa aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97948

<400> 36414
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaggggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36415
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97958

<400> 36415
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu ccagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua uuagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97968

<400> 36416
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36417
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97978

<400> 36417
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97988

<400> 36418
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36419
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD97998

<400> 36419

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgaaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36420
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98008

<400> 36420
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98018

<400> 36421
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98028

<400> 36422
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uauguauuua a 1701

<210> 36423
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98038

<400> 36423
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucaau cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgaaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98048

<400> 36424
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36425
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98058

<400> 36425
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98068

<400> 36426
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36427
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98078

<400> 36427
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg acuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucg 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98098

<400> 36428
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguucug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcag uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36429
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98118

<400> 36429
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg aagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacaagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADD98128

<400> 36430

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg aagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacaagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36431
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98138

<400> 36431
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uacuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98148

<400> 36432
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuuuca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36433
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98158

<400> 36433
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcgaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauauccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuagugau accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98168

<400> 36434
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucuau uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gcgacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgaaauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36435
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98188

<400> 36435
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98198

<400> 36436
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accagcaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaaaugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36437
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADD98208

<400> 36437

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20321

<400> 36438
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20331

<400> 36439
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20341

<400> 36440
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36441
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20351

<400> 36441
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20375

<400> 36442
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36443
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20388

<400> 36443
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20628

<400> 36444
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36445
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20638

<400> 36445
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20648

<400> 36446
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20658

<400> 36447
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADE20668

<400> 36448

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20678

<400> 36449
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20688

<400> 36450
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36451
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20708

<400> 36451
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20718

<400> 36452
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36453
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20728

<400> 36453
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20738

<400> 36454
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36455
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20748

<400> 36455

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20758

<400> 36456
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36457
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20768

<400> 36457
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20778

<400> 36458
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaaaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36459
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20788

<400> 36459
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20808

<400> 36460
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga guuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20818

<400> 36461
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20828

<400> 36462
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucacu auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36463
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20848

<400> 36463
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20858

<400> 36464
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20868

<400> 36465
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaggcaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu caccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADE20878

<400> 36466

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuauugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaaauauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20888

<400> 36467
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

cugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20898

<400> 36468
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucaa aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaggugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20908

<400> 36469
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuuuca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20918

<400> 36470
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggauacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20928

<400> 36471
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20948

<400> 36472
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gaccaaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36473
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20968

<400> 36473

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg aagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucauucugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacaagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20978

<400> 36474
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

uguuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36475
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20988

<400> 36475
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uguauagguu aucaugcgaa uaauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucagu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaaa gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE20998

<400> 36476
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36477
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE21008

<400> 36477
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE21018

<400> 36478
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE21028

<400> 36479
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgaaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE21038

<400> 36480
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE21048

<400> 36481
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuuuca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE21058

<400> 36482
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa uaaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE21068

<400> 36483
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaucu ucccuaagac aaguucaugg 420

cccaaucaug acucgaauaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaac uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36484
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADE28761

<400> 36484

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guucacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augaauccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa uggaagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 36485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28780

<400> 36485
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28790

<400> 36486
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28800

<400> 36487
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu uuaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28810

<400> 36488
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28820

<400> 36489
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aguccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28830

<400> 36490
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28840

<400> 36491

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28850

<400> 36492
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36493
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28881

<400> 36493
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28891

<400> 36494
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36495
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28911

<400> 36495
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28921

<400> 36496
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28931

<400> 36497
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28951

<400> 36498
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28961

<400> 36499
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaacg uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28971

<400> 36500
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE28981

<400> 36501
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uguauagguu aucaugcgaa caauucaaca gaaacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADE28991

<400> 36502

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36503
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE29001

<400> 36503
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE29011

<400> 36504
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgauuacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36505
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE29021

<400> 36505
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuc ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE29031

<400> 36506
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE29041

<400> 36507
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuguu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE29051

<400> 36508
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36509
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE29085

<400> 36509

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcuga ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagacguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE29095

<400> 36510
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagacguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36511
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE34191

<400> 36511
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE34202

<400> 36512
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36513
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE34213

<400> 36513
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgacg caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE34224

<400> 36514
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE34235

<400> 36515
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaccacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE34246

<400> 36516
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE34257

<400> 36517
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE34268

<400> 36518
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ggugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36519
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE45499

<400> 36519
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADE45501

<400> 36520

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE45503

<400> 36521
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gccuucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE45505

<400> 36522
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggagau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uggucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36523
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE45507

<400> 36523
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggagcaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE45509

<400> 36524
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggagcaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36525
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE45511

<400> 36525
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE45513

<400> 36526
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa uuaacuauua cuggacacua guagagccgg gagacaaaau aauauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE75388

<400> 36527

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaaa auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADE75390

<400> 36528
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36529
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10067

<400> 36529
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36530
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10077

<400> 36530
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaagguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucccua 1680

caguguagaa uauguauuua a 1701

<210> 36531
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10087

<400> 36531
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugaaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10097

<400> 36532
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36533
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10107

<400> 36533
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10117

<400> 36534
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36535
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10127

<400> 36535
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10137

<400> 36536
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10154

<400> 36537
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF10174

<400> 36538

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagucu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10190

<400> 36539
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10237

<400> 36540
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10262

<400> 36541
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10288

<400> 36542
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36543
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10302

<400> 36543
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10335

<400> 36544
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10359

<400> 36545

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10369

<400> 36546
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10390

<400> 36547
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10528

<400> 36548
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36549
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10598

<400> 36549
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10670

<400> 36550
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10724

<400> 36551
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10757

<400> 36552
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uaugcauuua a 1701

<210> 36553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10828

<400> 36553
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10874

<400> 36554
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF10929

<400> 36555
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaacaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF10996

<400> 36556

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaacaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27367

<400> 36557
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27369

<400> 36558
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27370

<400> 36559
augaaggcaa uacuaguaau ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu gguggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggcuauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27371

<400> 36560
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27372

<400> 36561
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucauacgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27373

<400> 36562
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaauagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaacua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27374

<400> 36563

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27375

<400> 36564
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacagaa ugccauugac gagauuacua acaaaauaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27376

<400> 36565
augaaggcaa uacuaguagu ucugcuauau acauuuguaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagaaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag gagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27378

<400> 36566
augaaggcaa uacuaguagu ucugcuauau acauuuguaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag gagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36567
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27389

<400> 36567
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca cuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27399

<400> 36568
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36569
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27409

<400> 36569
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27419

<400> 36570
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36571
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27429

<400> 36571
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uucuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauga aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc cgaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27439

<400> 36572
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaccaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36573
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27449

<400> 36573
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccguaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF27459

<400> 36574

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacaccuaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gcuugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36575
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27469

<400> 36575
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accagcaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27479

<400> 36576
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucauucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36577
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27489

<400> 36577
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaauacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27499

<400> 36578
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36579
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27509

<400> 36579
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagucu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27529

<400> 36580
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36581
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27539

<400> 36581

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27549

<400> 36582
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27559

<400> 36583
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcugguug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27569

<400> 36584
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagag ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36585
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27579

<400> 36585
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36586
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27589

<400> 36586
augaaggcaa uacugguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36587
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27599

<400> 36587
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuagacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaagcaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27609

<400> 36588
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36589
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27619

<400> 36589
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagucccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27629

<400> 36590
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccacu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27649

<400> 36591
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auccaaccua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF27659

<400> 36592

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27669

<400> 36593
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27679

<400> 36594
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagguaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27689

<400> 36595
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acguuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27699

<400> 36596
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27709

<400> 36597
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaauaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36598
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27785

<400> 36598
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gacugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36599
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27795

<400> 36599

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuguu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36600
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27805

<400> 36600
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggagacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugcuauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36601
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27815

<400> 36601
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugaugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27825

<400> 36602
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auucugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36603
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27845

<400> 36603
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuaaugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27855

<400> 36604
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36605
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27865

<400> 36605
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27875

<400> 36606
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27885

<400> 36607
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27895

<400> 36608
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36609
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27915

<400> 36609
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

gcuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 36610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF27925

<400> 36610

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua augauaaagg gaaagaaguu cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36611
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27935

<400> 36611
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccaaagu gugaaucacu cuccacagaa agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauaa ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27955

<400> 36612
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36613
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27965

<400> 36613
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaaaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagucaac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27975

<400> 36614
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauuu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacc 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36615
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27985

<400> 36615
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggagacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF27995

<400> 36616
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagauaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaaugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36617
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28005

<400> 36617

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28015

<400> 36618
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28025

<400> 36619
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28045

<400> 36620
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36621
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28055

<400> 36621
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaauuaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuauaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28065

<400> 36622
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28075

<400> 36623
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga acuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucggauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28085

<400> 36624
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36625
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28107

<400> 36625
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF28117

<400> 36626
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF29918

<400> 36627
augaaggcaa uacuaguagu acugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaga 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF42689

<400> 36628
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg cagucucccu gggggcaauc gguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF42699

<400> 36629
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggac acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF42709

<400> 36630
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36631
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF42719

<400> 36631
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF42729

<400> 36632
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36633
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF42739

<400> 36633
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF58349

<400> 36634
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36635
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF58351

<400> 36635

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF80454

<400> 36636
augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuauuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgaugac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36637
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF80462

<400> 36637
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguug aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36638
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<213> Artificial Sequence

<220>
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<400> 36638
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guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36639
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaauggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36640
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADF80494

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacucuugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36641
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacucuugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36642
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADF80502

<400> 36642
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugccgaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36643
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF80506

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguagca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36644
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83741

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auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaguaa ugagaucaga ugcacccauu ggcaaaugca auucugauug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

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agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36645
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83752

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36646
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF83763

<400> 36646

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guaacaguaa cacacucugu aaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36647
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36648
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83783

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaggaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaccacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36649
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADF83803

<400> 36650
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaac uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83813

<400> 36651
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagcacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADF83823

<400> 36652
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guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauuaga aaaugaaaga acuuuagacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36653
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83833

<400> 36653

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83843

<400> 36654
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36655
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83853

<400> 36655
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83873

<400> 36656
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36657
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83885

<400> 36657
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36658
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83895

<400> 36658
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagauaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36659
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF83915

<400> 36659
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36660
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF84441

<400> 36660
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccagucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auauacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36661
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF84459

<400> 36661
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cuaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36662
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF84469

<400> 36662
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36663
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF84479

<400> 36663
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36664
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF84489

<400> 36664

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36665
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF85017

<400> 36665
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36666
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87152

<400> 36666
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

uuaagagggg uagccccauu gcauuugggu aaauguaaua uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36667
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87162

<400> 36667
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36668
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87172

<400> 36668
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36669
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87182

<400> 36669
augaaugcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagaugc accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaauaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36670
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87192

<400> 36670
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36671
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87202

<400> 36671

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auuugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87212

<400> 36672
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugagg cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36673
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87232

<400> 36673
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg aagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacaagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87242

<400> 36674
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36675
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87252

<400> 36675
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaaau cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36676
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF87262

<400> 36676
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36677
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADF87272

<400> 36677
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36678
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87282

<400> 36678
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36679
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87292

<400> 36679
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uguauagguu aucacgcgaa caauucaaca gacacuguag acacaguacu aaaaaagaau 120

guaacaguaa cacacucggu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca ggcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcua uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36680
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 36680
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36681
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87331

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADF87341

<400> 36682

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36683
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87351

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugacucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguauugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36684
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADF87361

<400> 36684
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaccaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36685
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 36685
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuauaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36686
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADG08115

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ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuuuugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36687
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADG21004

<400> 36687
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36688
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21006

<400> 36688
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36689
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21008

<400> 36689

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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaauccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36690
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21009

<400> 36690
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacacca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36691
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21010

<400> 36691
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguugaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36692
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21011

<400> 36692
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<210> 36693
<211> 1701
<212> RNA

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguuua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguugaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcuaguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagaca cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag auacucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaaa aaucauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

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uucaauugga cuggagucac ucaaagcgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucauaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

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aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36701
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21023

<400> 36701
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguga acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uauggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21024

<400> 36702
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcgcac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca gagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36703
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21026

<400> 36703
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacu cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 36704
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21037

<400> 36704
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36705
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21038

<400> 36705
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21040

<400> 36706
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36707
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21041

<400> 36707

augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaguc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21042

<400> 36708
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 36709
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21043

<400> 36709
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36710
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21045

<400> 36710
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36711
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21046

<400> 36711
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36712
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21048

<400> 36712
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gcuugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggugg 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36713
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21049

<400> 36713
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacauccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaacgggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21122

<400> 36714
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36715
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21123

<400> 36715
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21124

<400> 36716
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cccaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21125

<400> 36717
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcgauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36718
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG21126

<400> 36718

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucga gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36719
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21127

<400> 36719
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucga gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36720
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21128

<400> 36720
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucga gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36721
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21129

<400> 36721
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucga gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21130

<400> 36722
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cagugcagaa uauguauuua a 1701

<210> 36723
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21131

<400> 36723
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21132

<400> 36724
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36725
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21133

<400> 36725

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21134

<400> 36726
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36727
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21135

<400> 36727
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21136

<400> 36728
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36729
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21137

<400> 36729
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21138

<400> 36730
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug aucaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36731
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21139

<400> 36731
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggauca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36732
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21140

<400> 36732
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucaugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36733
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21141

<400> 36733
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21142

<400> 36734
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36735
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21143

<400> 36735
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36736
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG21144

<400> 36736

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36737
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21145

<400> 36737
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuuagcaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21146

<400> 36738
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36739
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21147

<400> 36739
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21148

<400> 36740
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuguu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cagugcagaa uauguauuua a 1701

<210> 36741
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21149

<400> 36741
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuauccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21150

<400> 36742
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guggagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36743
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21151

<400> 36743

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21152

<400> 36744
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36745
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21153

<400> 36745
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cagugcagaa uauguauuua a 1701

<210> 36746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21154

<400> 36746
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36747
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21155

<400> 36747
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21156

<400> 36748
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guggagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36749
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21158

<400> 36749
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36750
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21159

<400> 36750
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcaauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugc uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36751
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21160

<400> 36751
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21161

<400> 36752
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugggucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacaauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21163

<400> 36753
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acguuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG21165

<400> 36754

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36755
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21166

<400> 36755
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21168

<400> 36756
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uucuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36757
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21169

<400> 36757
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21170

<400> 36758
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21173

<400> 36759
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21174

<400> 36760
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21175

<400> 36761

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21176

<400> 36762
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21177

<400> 36763
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21178

<400> 36764
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36765
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21179

<400> 36765
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaguacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21180

<400> 36766
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21181

<400> 36767
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21182

<400> 36768
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21183

<400> 36769
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcgaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21184

<400> 36770
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guggagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36771
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21185

<400> 36771
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaagaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuguu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG21188

<400> 36772

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36773
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21402

<400> 36773
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggagu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggga uucaccaucc gaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcu 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aauccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacauaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 36774
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21414

<400> 36774
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auugguuacc augcaaacaa cucgacagag cauguugaca caauaaugga aaagaauguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugggggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaacgga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuuug aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caauggaucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36775
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21416

<400> 36775
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auugguuacc augcaaacaa cucaacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcggca 600

gagcagacag ggcuuuauca aaacccaacu accuauauuu ccguuggggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugauguaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cacagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccacagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caauggaucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36776
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21420

<400> 36776
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagca auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caauggaucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36777
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21422

<400> 36777
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca augggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag ccggauggcu ccucgggaau 240

ccaaugugcg acgaguuccu caaugugccg gaauggucuu acauagugga aaagaucaau 300

ccaaccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagag aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaauucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaucuuu acgacaaggu ccggcuacag cuuagggaua augcaaaaga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagaucaa aaagagagga aauaaguggg 1560

gugaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caauggauca 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36778
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21425

<400> 36778
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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag ccggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaauuc uuggucagau 420

cauggagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcggaa 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaauucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gagcaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauauga uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acaaauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaaa 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaaugc uuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuuggcaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagaaga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auauugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuaucuuuau ggauguguuc caauggaucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36779
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21429

<400> 36779

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acuguuacac acgcccaaga cauacuggaa aaaacacaca acgggaaacu cugcaaucua 180

gauggagugg agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugauguaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucag acagacuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcucgguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuacuuuuau ggaugugcuc caauggaucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36780
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<212> RNA
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hemagglutinin__InfluenzaA__ADG21437

<400> 36780
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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccca aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguuugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaaag uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugauguaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccau cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguuuuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36781
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 36781
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaaugucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaagguuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguacccca aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caauggaucg 1680

cuacaaugca gaauuugcau uuaa 1704

<210> 36782
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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<400> 36782
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auugguuacc augcaaacaa cucgacagag caaguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccauccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugaggca 600

gagcagacaa gucuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaaugggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaau uggaauaugg caacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg cggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguugcuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caauggaucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36783
<211> 1704
<212> RNA

<213> Artificial Sequence

<220>
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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccuagggaac 240

ccaaugugcg acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccaaccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguauua ugggggauuc accauccaaa ugaugcggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguuggggac aucaacacua 660

aaccagagau ugguacccaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

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ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggggaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacggu 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caauggaucg 1680

cuacaaugca gaauuugcau uuaa 1704

<210> 36784
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21445

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auugguuacc augcaaacaa cucgacagag caaguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaaugguguu acauagugga gaagaucaau 300

ccauccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaauuc uuggucagau 420

caugaagccu caggagugag cucagcaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaagaacaau gcauacccaa caauaaagaa aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugaggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaau uggaauaugg caacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagaa auagcccuca aggagagaga 1020

agaagaaaaa agagaggacu auuuggagcu auagcagguu uuauagaggg cggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuauuuuuau ggaugugcuc caauggaucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 36785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21912

<400> 36785
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21913

<400> 36786
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36787
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21914

<400> 36787
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21915

<400> 36788
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gugacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uagaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36789
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21916

<400> 36789
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG21917

<400> 36790

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cugugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36791
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21918

<400> 36791
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36792
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21919

<400> 36792
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36793
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21921

<400> 36793
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 36794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21922

<400> 36794
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21923

<400> 36795
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36796
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21924

<400> 36796
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21925

<400> 36797

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21926

<400> 36798
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga aauuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21927

<400> 36799
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36800
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21928

<400> 36800
augaaggcaa cacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccagagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36801
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21930

<400> 36801
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21931

<400> 36802
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36803
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21932

<400> 36803
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21933

<400> 36804
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36805
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21934

<400> 36805
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21935

<400> 36806
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaauuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36807
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21936

<400> 36807
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36808
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG21937

<400> 36808

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36809
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21938

<400> 36809
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga aauuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21939

<400> 36810
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36811
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21940

<400> 36811
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36812
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21941

<400> 36812
auggaggcaa uacuaguagu ucugcuauau acauucgcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36813
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21943

<400> 36813
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36814
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21944

<400> 36814
auggaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36815
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21945

<400> 36815

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36816
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21946

<400> 36816
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36817
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21947

<400> 36817
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36818
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG21948

<400> 36818
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacc accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36819
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG27794

<400> 36819
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggac uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36820
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG27948

<400> 36820
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36821
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG27966

<400> 36821
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36822
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG27974

<400> 36822
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa ggcccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugauacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36823
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG27982

<400> 36823
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36824
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG27988

<400> 36824
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36825
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG27997

<400> 36825
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36826
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG28011

<400> 36826

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36827
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42093

<400> 36827
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36828
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42103

<400> 36828
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36829
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42113

<400> 36829
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucuuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42123

<400> 36830
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36831
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42133

<400> 36831
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cuuaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggucacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42143

<400> 36832
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaacu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36833
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42153

<400> 36833

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccugagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccuc gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36834
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42193

<400> 36834
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36835
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42213

<400> 36835
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42233

<400> 36836
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36837
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42243

<400> 36837
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccuc gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42253

<400> 36838
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36839
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42263

<400> 36839
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42273

<400> 36840
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36841
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42283

<400> 36841
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaacgggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagga uauguauuua a 1701

<210> 36842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42293

<400> 36842
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gacuucaccg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36843
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42303

<400> 36843
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguagu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG42313

<400> 36844

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36845
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42323

<400> 36845
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42333

<400> 36846
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagaugc accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36847
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42343

<400> 36847
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuuu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaguaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuagccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42363

<400> 36848
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42373

<400> 36849
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42393

<400> 36850
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42403

<400> 36851

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42413

<400> 36852
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42423

<400> 36853
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgauuu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42443

<400> 36854
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36855
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42453

<400> 36855
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

guagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguucu 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42463

<400> 36856
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42473

<400> 36857
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42483

<400> 36858
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auccaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42493

<400> 36859
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42503

<400> 36860
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42513

<400> 36861
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacgcagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG42533

<400> 36862

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaccaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42553

<400> 36863
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauacg aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42573

<400> 36864
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacaa acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42583

<400> 36865
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42593

<400> 36866
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42603

<400> 36867
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagaaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

gguucuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42613

<400> 36868
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36869
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42623

<400> 36869

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42633

<400> 36870
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36871
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42643

<400> 36871
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg cagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacguua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaagaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42653

<400> 36872
augaaggcaa uacuaguagu ucugcuauau acaucugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36873
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42663

<400> 36873
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36874
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42673

<400> 36874
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca ggcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36875
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42683

<400> 36875
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccaggg aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42693

<400> 36876
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36877
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42703

<400> 36877
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36878
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42723

<400> 36878
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gacuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auggcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36879
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42743

<400> 36879
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36880
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG42753

<400> 36880

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uucuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36881
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42763

<400> 36881
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaaccucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36882
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42773

<400> 36882
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36883
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42783

<400> 36883
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucgagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acuugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36884
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42793

<400> 36884
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36885
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42803

<400> 36885
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucgagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acuugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42813

<400> 36886
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccuucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42823

<400> 36887

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcggcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42833

<400> 36888
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

uguuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36889
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42843

<400> 36889
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42853

<400> 36890
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36891
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42863

<400> 36891
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuauugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaaauauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36892
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42883

<400> 36892
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgaaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36893
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42893

<400> 36893
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaauuugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42903

<400> 36894
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42913

<400> 36895
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG42923

<400> 36896
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57087

<400> 36897
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccauuuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgguguagaa uauguauuua a 1701

<210> 36898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG57088

<400> 36898

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36899
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57089

<400> 36899
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaacgc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucc aguaugagga gcugagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccgaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36900
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57090

<400> 36900
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag uaucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaggagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

caacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc cgaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57091

<400> 36901
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaagggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa cgccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36902
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57092

<400> 36902
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaucaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36903
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57093

<400> 36903
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguugugguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuacuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauc 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36904
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57094

<400> 36904
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uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca guaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57095

<400> 36905

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57097

<400> 36906
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu aaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaagg 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36907
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57098

<400> 36907
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36908
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57099

<400> 36908
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuacagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36909
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG57100

<400> 36909
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagga gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaagg acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58939

<400> 36910
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36911
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58940

<400> 36911
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36912
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58941

<400> 36912
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau gaaaaugagc agggggucagg auacgcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36913
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58942

<400> 36913
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucuccau caaaaugagc agggggucagg auacgcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58943

<400> 36914
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36915
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58944

<400> 36915
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36916
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG58946

<400> 36916

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36917
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58947

<400> 36917
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36918
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58948

<400> 36918
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auacgcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36919
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58949

<400> 36919
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auacgcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36920
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58951

<400> 36920
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucaggca auggaacgug uuacccagga gaguucauag auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauag aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36921
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58952

<400> 36921
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucaggca auggaacgug uuacccagga gaguucauag auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauag aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58953

<400> 36922
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucaggca auggaacgug uuacccagga gaguucauag auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauag aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58954

<400> 36923

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucaggca auggaacgug uuacccagga gaguucauag auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauag aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36924
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58955

<400> 36924
augaaggcaa uacuaguagu ucugcuacau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucaggca auggaacgug uuacccagga gaguucauag auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauag aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36925
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58956

<400> 36925
augaaggcaa uacuaguagu ucugcuacau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucaggca auggaacgug uuacccagga gaguucauag auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauag aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58957

<400> 36926
augaaggcaa uacuaguagu ucugcuacau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucaggca auggaacgug uuacccagga gaguucauag auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaua gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36927
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58959

<400> 36927
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaua gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58960

<400> 36928
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36929
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58961

<400> 36929
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58962

<400> 36930
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36931
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58963

<400> 36931
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58964

<400> 36932
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36933
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58965

<400> 36933
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG58966

<400> 36934

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36935
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58967

<400> 36935
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG58968

<400> 36936
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36937
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59628

<400> 36937
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36938
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59629

<400> 36938
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36939
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59630

<400> 36939
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59631

<400> 36940
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36941
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59632

<400> 36941

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59633

<400> 36942
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36943
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59634

<400> 36943
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59635

<400> 36944
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36945
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59636

<400> 36945
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59638

<400> 36946
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59639

<400> 36947
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59641

<400> 36948
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaguguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36949
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59643

<400> 36949
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucgacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59644

<400> 36950
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau cgacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36951
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59646

<400> 36951
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36952
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG59647

<400> 36952

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36953
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59648

<400> 36953
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36954
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59649

<400> 36954
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36955
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59650

<400> 36955
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59651

<400> 36956
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36957
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59652

<400> 36957
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59653

<400> 36958
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36959
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59655

<400> 36959

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59656

<400> 36960
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau gggggauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59657

<400> 36961
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaag aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

acucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36962
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59658

<400> 36962
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uguauagguu aucaugcgaa caauucaaca gacacuauag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccacu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36963
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59659

<400> 36963
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36964
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59660

<400> 36964
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36965
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59662

<400> 36965
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36966
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59663

<400> 36966
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguguu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gggacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accauuccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaacgggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36967
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59664

<400> 36967
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcaucca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36968
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59666

<400> 36968
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucagcugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36969
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59667

<400> 36969
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ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auugagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36970
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG59669

<400> 36970

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagauccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36971
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59670

<400> 36971
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagauccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36972
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59671

<400> 36972
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagauccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36973
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59672

<400> 36973
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagauccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36974
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59673

<400> 36974
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu gaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguugu accgagauau gcauucgcaa uggaaagaaa cgcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaucugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36975
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59674

<400> 36975
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36976
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59675

<400> 36976
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuuagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacgaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36977
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59676

<400> 36977

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaagg 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaacgggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59678

<400> 36978
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggucuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36979
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59680

<400> 36979
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36980
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59681

<400> 36980
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36981
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59683

<400> 36981
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu aaaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36982
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59684

<400> 36982
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36983
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59685

<400> 36983
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauug 60

uguauagguu aucaugcgaa caauucaaca gacacuauag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36984
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59686

<400> 36984
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36985
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59687

<400> 36985
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugau gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaacgggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36986
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59688

<400> 36986
augaaggcaa uacuaguagu ucugcuauau acaauugcaa ccgcaaaugc agacacauug 60

uguauagguu aucaugcgaa caauucaaca gacacuauag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagcccccuu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36987
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59689

<400> 36987
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gcgaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36988
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADG59691

<400> 36988

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36989
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59693

<400> 36989
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36990
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59696

<400> 36990
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36991
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59697

<400> 36991
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaaac 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36992
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59700

<400> 36992
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacucaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36993
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59701

<400> 36993
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36994
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59702

<400> 36994
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggaguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gggacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga aauuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaacgggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36995
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG59703

<400> 36995

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucaa aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36996
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG76646

<400> 36996
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36997
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADG76652

<400> 36997
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36998
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01808

<400> 36998
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucag 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaagguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 36999
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01818

<400> 36999
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37000
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01828

<400> 37000
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37001
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01838

<400> 37001
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaguaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37002
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01848

<400> 37002
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37003
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01858

<400> 37003
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37004
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01868

<400> 37004
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37005
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01878

<400> 37005
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37006
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADH01888

<400> 37006

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auugcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37007
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01898

<400> 37007
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37008
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01908

<400> 37008
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37009
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01918

<400> 37009
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagaa agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37010
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01928

<400> 37010
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagcgucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37011
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01938

<400> 37011
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaua aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37012
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01948

<400> 37012
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37013
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01958

<400> 37013

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaauugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccauaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37014
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01968

<400> 37014
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37015
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01978

<400> 37015
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa gggguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guggagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37016
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01988

<400> 37016
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcaucca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37017
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH01998

<400> 37017
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucguc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37018
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADH02008

<400> 37018
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaggcaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaauuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37019
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24508

<400> 37019
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37020
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24515

<400> 37020
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu ccccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagaguacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37021
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24517

<400> 37021
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37022
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24519

<400> 37022
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacugugg acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37023
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24521

<400> 37023
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37024
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24523

<400> 37024
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37025
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24525

<400> 37025
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcgaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agaucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37026
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24527

<400> 37026
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccauaa augcgauaac acgugcaugg aaagugucaa aaaugguacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37027
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24529

<400> 37027
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37028
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADI24531

<400> 37028
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuacu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguaaaa uauguauuua a 1701

<210> 37029
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADI24536

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37030
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37031
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24553

<400> 37031

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37032
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADI24555

<400> 37032
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37033
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24557

<400> 37033
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37034
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24559

<400> 37034
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37035
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24561

<400> 37035
augaaggcaa uacuaguaau ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37036
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24563

<400> 37036
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37037
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24565

<400> 37037
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaggg gaaaaaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37038
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24567

<400> 37038
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaauaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37039
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24569

<400> 37039
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uagaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37040
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24571

<400> 37040
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacugugg acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37041
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24573

<400> 37041
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37042
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24575

<400> 37042
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaauguggag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37043
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24577

<400> 37043
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaaguac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37044
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24581

<400> 37044
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gguccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccuaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuaua 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca gagaagaaau agaugggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37045
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24583

<400> 37045
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaacgc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37046
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24590

<400> 37046
augaaggcaa uacuaguagu ucuguuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37047
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24597

<400> 37047
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aauuguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37048
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24612

<400> 37048
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37049
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24619

<400> 37049

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguguug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37050
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI24621

<400> 37050
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

gguacuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37051
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADI48184

<400> 37051
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa ugggaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaagaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37052
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48186

<400> 37052
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37053
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48188

<400> 37053
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gauauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaagaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37054
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48190

<400> 37054
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uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acugugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaagaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37055
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48192

<400> 37055
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uugacgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37056
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48194

<400> 37056
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu uagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgauuu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37057
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48196

<400> 37057
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaguuggacu caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37058
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48198

<400> 37058
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuuuugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37059
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48200

<400> 37059
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuuuugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37060
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADI48202

<400> 37060

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuuuugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37061
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48204

<400> 37061
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aauguagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua aaaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuuuugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37062
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48208

<400> 37062
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37063
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48210

<400> 37063
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37064
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48212

<400> 37064
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acguuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37065
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48214

<400> 37065
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg cagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37066
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48216

<400> 37066
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acguuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37067
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48218

<400> 37067

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaagauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37068
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48220

<400> 37068
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaguguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

acaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuugggcu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37069
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48622

<400> 37069
augaaggcaa uacuaguauu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaacg gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuuaggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48632

<400> 37070
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcguuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37071
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48642

<400> 37071
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48652

<400> 37072
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37073
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48672

<400> 37073
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaca auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37074
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48682

<400> 37074
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37075
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48692

<400> 37075
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37076
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48702

<400> 37076
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37077
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48712

<400> 37077
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggauca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADI48722

<400> 37078

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggauca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37079
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48732

<400> 37079
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48742

<400> 37080
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37081
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48752

<400> 37081
auggaggcaa uacuaguauu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48762

<400> 37082
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37083
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48772

<400> 37083
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaagcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggucuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48782

<400> 37084
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaauca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37085
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI48792

<400> 37085

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauauuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucag 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49029

<400> 37086
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaagaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37087
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49240

<400> 37087
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49260

<400> 37088
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37089
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49270

<400> 37089
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccagggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49280

<400> 37090
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37091
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49312

<400> 37091
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49322

<400> 37092
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucag 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa auuuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaagguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37093
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49332

<400> 37093
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49342

<400> 37094
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37095
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49352

<400> 37095
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaagugaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADI49362

<400> 37096

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa auuuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37097
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49382

<400> 37097
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau aggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37098
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49392

<400> 37098
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37099
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49717

<400> 37099
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37100
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49727

<400> 37100
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuauuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37101
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49737

<400> 37101
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49747

<400> 37102
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37103
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49757

<400> 37103

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaguaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49767

<400> 37104
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagauaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37105
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49777

<400> 37105
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacgau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49787

<400> 37106
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucaau cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucga gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37107
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI49822

<400> 37107
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI50027

<400> 37108
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaaauauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucugguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg ucaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggaua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37109
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI52834

<400> 37109
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcaucugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggauca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacc 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI52835

<400> 37110
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37111
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI52836

<400> 37111
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaacg ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI52837

<400> 37112
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagucaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaaauggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37113
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72915

<400> 37113
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37114
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADI72916

<400> 37114

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37115
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72917

<400> 37115
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37116
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72918

<400> 37116
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauagagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37117
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72919

<400> 37117
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37118
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72920

<400> 37118
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37119
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72921

<400> 37119
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugcccuugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37120
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72922

<400> 37120
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37121
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72923

<400> 37121

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccucaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaccu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gggaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37122
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72924

<400> 37122
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37123
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72925

<400> 37123
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72926

<400> 37124
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaggauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37125
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72927

<400> 37125
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca cuucagauac gccaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72928

<400> 37126
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gaaaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37127
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72929

<400> 37127
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37128
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72930

<400> 37128
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37129
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72931

<400> 37129
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacgguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggaua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37130
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI72932

<400> 37130
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37131
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI75818

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaagaauu uguuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggc uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37132
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADI75851

<400> 37132

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu gcaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcggauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaaaacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa ugggacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37133
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI75884

<400> 37133
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caauuacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37134
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI75917

<400> 37134
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37135
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI77349

<400> 37135
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu auacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugauacga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37136
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI77360

<400> 37136
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37137
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37138
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADI99560

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37140
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37141
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37142
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI99610

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga guuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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<210> 37143
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucacagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37144
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<220>
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hemagglutinin__InfluenzaA__ADI99630

<400> 37144
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guaacaguaa cacacucugu uaaccuucua gaagacaaga auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37145
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacauucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37146
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI99660

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37147
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uauggcuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI99680

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc guuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccacccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacaaua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37149
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI99690

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug guuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaaaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADI99700

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uauccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcguuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37151
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI99710

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua uuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI99720

<400> 37152
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu aucgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37153
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADI99730

<400> 37153
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagca 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37154
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ00497

<400> 37154
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37155
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ00498

<400> 37155
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37156
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ00501

<400> 37156
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37157
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ18163

<400> 37157

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacaccuaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggacuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ18165

<400> 37158
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37159
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ18167

<400> 37159
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuuaggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cuuaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaagaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37160
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ18169

<400> 37160
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37161
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ18171

<400> 37161
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acaccguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggc ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuaccaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauuc augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca guaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucga 720

caagggagaa ugaacuauua cuggacacua guagagcugg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacaaccacg 900

ggugcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ18173

<400> 37162
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggacuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37163
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ18175

<400> 37163
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga acuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggacuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37164
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ18177

<400> 37164
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

accagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

guucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaucugaaga gcacacagaa ugcaauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37165
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40444

<400> 37165
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu aaaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37166
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40454

<400> 37166
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua uuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

gagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37167
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40464

<400> 37167
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaauac agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuga uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37168
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADJ40474

<400> 37168

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagacaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37169
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40494

<400> 37169
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa cuuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37170
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40514

<400> 37170
augaaggcag uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37171
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40524

<400> 37171
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40534

<400> 37172
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccaccgca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37173
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40554

<400> 37173
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaauac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40564

<400> 37174
augaaggcaa uacuaguagu ucugcuguau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37175
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40574

<400> 37175

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuuguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37176
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40584

<400> 37176
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37177
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40594

<400> 37177
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37178
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40604

<400> 37178
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37179
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40614

<400> 37179
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37180
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40634

<400> 37180
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37181
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40644

<400> 37181
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37182
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40654

<400> 37182
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37183
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40664

<400> 37183
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37184
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ40674

<400> 37184
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37185
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ41816

<400> 37185
augaagacua ucauugcuuu gagcuacaug uucugucugg uuuucgccca aaaccuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaggau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcugua cuugcaaaag gggaucuaau 480

gacaguuucu ucaguagacu gaacugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gauucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauauucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaguagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

ugucccaggu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaaacaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37186
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADJ56640

<400> 37186

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37187
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ56650

<400> 37187
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauauggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37188
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ67983

<400> 37188
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37189
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ67984

<400> 37189
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37190
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ67985

<400> 37190
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37191
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80241

<400> 37191
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37192
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80242

<400> 37192
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaacuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37193
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80243

<400> 37193

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37194
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80634

<400> 37194
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37195
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80644

<400> 37195
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugacucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37196
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80654

<400> 37196
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugacucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37197
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80674

<400> 37197
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37198
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80684

<400> 37198
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga acuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37199
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80694

<400> 37199
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaauc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37200
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80704

<400> 37200
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37201
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80714

<400> 37201
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg cagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguucc 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37202
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80724

<400> 37202
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37203
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80734

<400> 37203
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

uuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gccgcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37204
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADJ80744

<400> 37204

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucg 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37205
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80754

<400> 37205
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccuaaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37206
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80774

<400> 37206
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37207
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80784

<400> 37207
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37208
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80794

<400> 37208
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37209
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80804

<400> 37209
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugacucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37210
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80814

<400> 37210
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa gggguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uagaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37211
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80834

<400> 37211

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uucuggaucu 840

gguauuauca uuucagacac accaguccac uauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuug acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37212
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80848

<400> 37212
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucgagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37213
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80858

<400> 37213
augaagacaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37214
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80868

<400> 37214
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cuaaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gaggcaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37215
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80883

<400> 37215
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacaccguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagauaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37216
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80893

<400> 37216
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37217
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80910

<400> 37217
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37218
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80927

<400> 37218
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgag 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggucuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37219
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80937

<400> 37219
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

agcuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37220
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80947

<400> 37220
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37221
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80967

<400> 37221
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcugagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37222
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADJ80977

<400> 37222

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37223
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ80993

<400> 37223
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cuaaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucuuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37224
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ81003

<400> 37224
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccaaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37225
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ81013

<400> 37225
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucgagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acuugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37226
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ81023

<400> 37226
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37227
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ81033

<400> 37227
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucugguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37228
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ81043

<400> 37228
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggaguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa aucuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37229
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ81053

<400> 37229

augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

uuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguu cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37230
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADJ81063

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucggu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcguguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37231
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADJ84772

<400> 37231
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37232
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugggggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37233
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADK21733

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37234
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21743

<400> 37234
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagcaac 540

uccuacauua augauaaagg gaaagaaguu cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37235
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21753

<400> 37235
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucuaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaggaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37236
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21763

<400> 37236
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37237
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21773

<400> 37237
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37238
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21783

<400> 37238
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucugguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37239
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21813

<400> 37239
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugcggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37240
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK21823

<400> 37240

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcggcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37241
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21833

<400> 37241
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucgc gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37242
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21843

<400> 37242
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacagag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaucugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37243
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21853

<400> 37243
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37244
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21863

<400> 37244
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua uuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37245
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21873

<400> 37245
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37246
<211> 1701
<212> RNA
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<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgaaauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37247
<211> 1701
<212> RNA
<213> Artificial Sequence

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<400> 37247

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37248
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37249
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37250
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21923

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaggcaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguaca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37251
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21933

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cuaaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagguaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auccaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37252
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21943

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guaacaguaa cacacucugu uaaccuccua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37253
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK21953

<400> 37253
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg aucaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau gggccauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37254
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32390

<400> 37254
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37255
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32400

<400> 37255
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37256
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32420

<400> 37256
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37257
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32430

<400> 37257
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37258
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK32440

<400> 37258

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37259
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32450

<400> 37259
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagaugc accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37260
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32460

<400> 37260
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37261
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32470

<400> 37261
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37262
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32480

<400> 37262
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaucugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37263
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32490

<400> 37263
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau cgacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37264
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32502

<400> 37264
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucuaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37265
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32637

<400> 37265

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37266
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32647

<400> 37266
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga guuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37267
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK32657

<400> 37267
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaac 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37268
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32677

<400> 37268
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37269
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32687

<400> 37269
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaaac 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauaa augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguucu 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37270
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK32697

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37271
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37271
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauaa augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37272
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37272
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37273
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33631

<400> 37273
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagucaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37274
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33641

<400> 37274
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37275
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33651

<400> 37275
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucacua 1680

caguguagaa uauguauuua a 1701

<210> 37276
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK33661

<400> 37276

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucacua 1680

caguguagaa uauguauuua a 1701

<210> 37277
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 37277
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccuuaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37278
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33681

<400> 37278
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuagucaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37279
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33691

<400> 37279
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37280
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33701

<400> 37280
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37281
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33711

<400> 37281
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37282
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33721

<400> 37282
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37283
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33731

<400> 37283

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa cgucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37284
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37285
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37286
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADK33761

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugagc cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37287
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33771

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37288
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADK33781

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37289
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33791

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37290
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33801

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37291
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33811

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccauca 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggaua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37292
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33821

<400> 37292
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaaccgu cgccaguuca 1620

uugguacugg cagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37293
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33831

<400> 37293
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaauac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37294
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK33841

<400> 37294

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37295
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33851

<400> 37295
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37296
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33861

<400> 37296
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37297
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33871

<400> 37297
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuagugau accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37298
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33881

<400> 37298
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaucugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaggca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37299
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33891

<400> 37299
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37300
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33901

<400> 37300
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37301
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33911

<400> 37301

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaggcaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaauuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37302
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33931

<400> 37302
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37303
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33941

<400> 37303
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua uuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37304
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33951

<400> 37304
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaggcaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaauuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37305
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK33961

<400> 37305
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37306
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK45312

<400> 37306
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37307
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK45410

<400> 37307
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37308
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK45421

<400> 37308
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37309
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK45432

<400> 37309
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agaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacaau ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcugc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 37310
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK45443

<400> 37310
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caauuacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37311
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK48798

<400> 37311
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagga uauguauuua a 1701

<210> 37312
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK62683

<400> 37312

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucuaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37313
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK62693

<400> 37313
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu guggaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37314
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK62703

<400> 37314
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37315
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK64992

<400> 37315
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggaua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguauagaa uauguauuua a 1701

<210> 37316
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK65001

<400> 37316
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugccugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37317
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK65009

<400> 37317
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaaaaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgga 780

gcaacuggaa accuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37318
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87287

<400> 37318
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacucauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37319
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87288

<400> 37319

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu auccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caacaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37320
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87289

<400> 37320
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac ugggguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccuaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuucug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugggaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37321
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87291

<400> 37321
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucucccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugggaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37322
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87293

<400> 37322
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguaaauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

agcaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37323
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87295

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ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugacgg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcucac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggcgcaaca uuugcauuug a 1701

<210> 37324
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87296

<400> 37324
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcugaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgag 780

gcaacuggaa aucuaguggu accgagaugu gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37325
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADK87298

<400> 37325
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca guggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguaauauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uccuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37326
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87300

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacagucucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aaucgcuccg agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca auucugaaug caucgcucca 900

aauggaagca uucccaauga caaaucauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccg agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcgaca uuugcauuug a 1701

<210> 37328
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87304

<400> 37328
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauggcc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37329
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87306

<400> 37329
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcugcuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uuggacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggggugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaug gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa acuccaucag acugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagagccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37330
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87308

<400> 37330
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccg agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuc guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37331
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87309

<400> 37331
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucgau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu gucgggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37332
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87310

<400> 37332
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac agguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37333
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87311

<400> 37333
augaaggcaa uacuaguagu ucuacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgga caauucaaca gacacuguag acacaguacu agaaaggaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug gccaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccc cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcuacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37334
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87313

<400> 37334
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca gaaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucgcaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu ccgagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37335
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87315

<400> 37335
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguccaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ccaaccaccu ggaaacaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauagc acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37336
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK87317

<400> 37336
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37337
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87319

<400> 37337

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac agaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccggauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37338
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87321

<400> 37338
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag cgucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcauccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucccaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagccuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37339
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADK87323

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ggaaaugaca acagcacggc aacgcugugc cucgggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaggg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucgga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 37340
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagac auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37341
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggggu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggug caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc accauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37342
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87328

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

agugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aagaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37343
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacuag ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguaaauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucgccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caccuauugg acaauaguaa aaccgggaga cauacuuuua 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga uacacccauu ggcaaaugca auucugaaug caucacuccg 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37344
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87336

<400> 37344
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacuaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uacgccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguaaauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuua 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga uacacccauu ggcaaaagca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaag augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37345
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK87338

<400> 37345
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 37346
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90193

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaguaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37347
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADK90194

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37348
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK90195

<400> 37348

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37349
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37349
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcggua ggcaaggagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37350
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90197

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37351
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90198

<400> 37351
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37352
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90199

<400> 37352
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37353
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90200

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cguauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaggggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau agcauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcggucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37354
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90201

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augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37355
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90202

<400> 37355

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaccacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg cuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaac 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacgcagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37356
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90203

<400> 37356
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37357
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK90204

<400> 37357
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37358
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94191

<400> 37358
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37359
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94202

<400> 37359
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguga acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37360
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94213

<400> 37360
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuauu uuaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37361
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94224

<400> 37361
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuucug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37362
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94257

<400> 37362
auggagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cugggggucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag agggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37363
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37363
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37364
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94279

<400> 37364
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ggaaaugaca acagcacggc aacgcuaugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37365
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37365
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37366
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK94301

<400> 37366

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37367
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94323

<400> 37367
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu aaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 37368
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94441

<400> 37368
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37369
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94476

<400> 37369
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg ggcucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37370
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADK94487

<400> 37370
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuucug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37371
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94498

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37372
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37372
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagguu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auauuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37373
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94520

<400> 37373

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caauaacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu aaauugguug acccacuuaa gauucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacacca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau caggaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 37374
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94531

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37375
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94542

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucuug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgguaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37376
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94553

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugcaugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37377
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK94564

<400> 37377
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37378
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98501

<400> 37378
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

acaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37379
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98503

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aauguagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37380
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98623

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37381
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagagaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuucgc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37382
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98645

<400> 37382
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37383
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98656

<400> 37383
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agaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacaau ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcugc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 37384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK98667

<400> 37384

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugcaugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37385
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98678

<400> 37385
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucaa 900

aauggaagca uucccaauga uaaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggauucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37386
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 37387
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga uaaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggauucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagagaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37389
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgcg aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37390
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37391

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37392
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguua acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADK98799

<400> 37394
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37395
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaccuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggaa 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37397
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98843

<400> 37398
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugcaugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37399
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98854

<400> 37399
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agccagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37400
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98865

<400> 37400
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ggaagugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaacgga acaagcucug cuugcauaag gagaucuagu 480

aacaguuucu uuaguagauu gaacugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc aagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agagguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaacu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaacagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguagcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37401
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98876

<400> 37401
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc gaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccccaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa uggacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK98887

<400> 37402

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugcaugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98898

<400> 37403
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98909

<400> 37404
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ggaaaugaca acagcacggc aacgcugugc cuugggcauc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugua uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37405
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98920

<400> 37405
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcgg caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98931

<400> 37406
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuguuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguu 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagacgaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37407
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98942

<400> 37407
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu auauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ucgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98953

<400> 37408
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37409
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98964

<400> 37409

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagagaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37410
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98975

<400> 37410
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37411
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98986

<400> 37411
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK98997

<400> 37412
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37413
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99008

<400> 37413
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99030

<400> 37414
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacgauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37415
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99041

<400> 37415
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucgcgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uccccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgagggg 1260

agaauucagg accuugagaa auauguugaa gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99063

<400> 37416
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37417
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99085

<400> 37417
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguua acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99096

<400> 37418
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37419
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99107

<400> 37419
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37420
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADK99118

<400> 37420

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacauu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugcaugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99129

<400> 37421
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacaugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugcaugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99140

<400> 37422
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37423
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99151

<400> 37423
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuaaaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99162

<400> 37424
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37425
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99173

<400> 37425
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugauucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gccuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99184

<400> 37426
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugcgac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37427
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99195

<400> 37427

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99206

<400> 37428
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaggucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguuucccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37429
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99217

<400> 37429
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99228

<400> 37430
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37431
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99239

<400> 37431
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugagagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99250

<400> 37432
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuguuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguu 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgaaaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg acauugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagacgaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37433
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99261

<400> 37433
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99283

<400> 37434
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugugauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

auugggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagag auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37435
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99294

<400> 37435
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaga uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADK99305

<400> 37436
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37437
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL27989

<400> 37437
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADL28000

<400> 37438

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auggugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucagaaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28011

<400> 37439
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccagaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28022

<400> 37440
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37441
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37443
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28055

<400> 37443
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28066

<400> 37444
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37445
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28077

<400> 37445

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28088

<400> 37446
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uauucucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28099

<400> 37447
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28110

<400> 37448
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ggaaaugaca acagcacggc aacgcugugc auugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu gacaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37449
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 37449
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucaa ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADL28137

<400> 37450
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacggu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uugaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaaugguag augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37451
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37452
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37453
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28181

<400> 37453
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28192

<400> 37454
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaggucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37455
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28203

<400> 37455
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADL28214

<400> 37456

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37457
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28225

<400> 37457
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uauucucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa cagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28236

<400> 37458
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37459
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28247

<400> 37459
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caauuacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28258

<400> 37460
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucaaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugcaugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL28370

<400> 37461
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagagaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29672

<400> 37462
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37463
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29682

<400> 37463

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggauca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cagugcagaa uauguauuua a 1701

<210> 37464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29692

<400> 37464
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29702

<400> 37465
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uuccguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29730

<400> 37466
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37467
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29740

<400> 37467
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29750

<400> 37468
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugau gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29760

<400> 37469
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaauacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29770

<400> 37470
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29780

<400> 37471
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uuccguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL29879

<400> 37472
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37473
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32017

<400> 37473
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugccaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uuccguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADL32037

<400> 37474

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguguug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37475
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32047

<400> 37475
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32057

<400> 37476
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaagg ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaggcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37477
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32090

<400> 37477
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32114

<400> 37478
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32344

<400> 37479
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADL32354

<400> 37480
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32364

<400> 37481

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aucucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua uuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uuccguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32374

<400> 37482
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcugguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32384

<400> 37483
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32394

<400> 37484
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacaaca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uuccguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37485
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32404

<400> 37485
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32414

<400> 37486
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggcucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32424

<400> 37487
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32434

<400> 37488
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccauucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggauacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag gagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32444

<400> 37489
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32454

<400> 37490
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaacgc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaacu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32464

<400> 37491
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADL32484

<400> 37492

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37493
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32504

<400> 37493
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaaugug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32514

<400> 37494
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuuu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37495
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32524

<400> 37495
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucuuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugccg accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuguugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32544

<400> 37496
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagaaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32554

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acuugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32670

<400> 37498
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32690

<400> 37499

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaaugug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32710

<400> 37500
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32720

<400> 37501
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagggggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32730

<400> 37502
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37503
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL32740

<400> 37503
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu uuaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39137

<400> 37504
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucccu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggauuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37505
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39148

<400> 37505
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugaccguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagagauuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39159

<400> 37506
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu auccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aguucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaagaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guuuugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39170

<400> 37507
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacug ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aaccguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cguacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39203

<400> 37508
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucccu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37509
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39214

<400> 37509
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37510
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADL39225

<400> 37510

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agcgucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaggggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37511
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39236

<400> 37511
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacguaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uauacaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39280

<400> 37512
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37513
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39291

<400> 37513
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

augggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaccaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuaa guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaua uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39302

<400> 37514
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgguaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39313

<400> 37515
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguua acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39335

<400> 37516
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39368

<400> 37517

augaagacua ucauugcuuu gagcuacauu cuaugccuag uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuacaaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37518
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39390

<400> 37518
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcucac auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaagccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugguaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37519
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<212> RNA
<213> Artificial Sequence

<220>
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<400> 37519
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcaugag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuacaaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugagaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37521
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39423

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccagccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaccauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39434

<400> 37522
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gauauuccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguua acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37523
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADL39445

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaacccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccggag auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37524
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39456

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uguauaggcu accaugcuaa caacucgacc gauacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccagccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaacggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37525
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL39467

<400> 37525
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL41164

<400> 37526
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADL41173

<400> 37527
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37528
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADL60242

<400> 37528

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaagaaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc caucaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37529
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60253

<400> 37529
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uguauaggcu accaugcuaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacauucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcggauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aacccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaauggaga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggggugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37530
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60264

<400> 37530
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc caucaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggaccua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37531
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60275

<400> 37531
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaguugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc caucaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37532
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60286

<400> 37532
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaguaauc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaagua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagacgguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaacgcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37533
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60297

<400> 37533
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg ucgccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacgaggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaaggauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggaccua uaacgcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuccc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacggucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37534
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60308

<400> 37534
augaaaguaa aacuacuggu ccuguuaugc acauuugcag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugucc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauacuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37535
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60341

<400> 37535

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc guuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugucc aaaaggcccu cuaucauaca gaaauugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaagagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacuauacuu gaacccgggg auacuauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcucc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucua gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37536
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60352

<400> 37536
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg gcuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc caucaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggaccua uaacgcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60363

<400> 37537
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaauuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaauugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggacg aaucacaauc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggagu aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugucua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcauugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37538
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADL60374

<400> 37538
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc augauggggga aaguaguuuu 480

uacagaaauu uacuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu ggugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagggug guuacaggac uaaggaacau uccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca ucuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37539
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM07135

<400> 37539
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gggacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM07144

<400> 37540
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM07154

<400> 37541
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM07163

<400> 37542
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37543
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM07460

<400> 37543
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM07504

<400> 37544
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa auuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaagugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ugagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12806

<400> 37545
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM12817

<400> 37546

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12828

<400> 37547
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gauuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12839

<400> 37548
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37549
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12850

<400> 37549
augaaggcua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12861

<400> 37550
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12871

<400> 37551
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12881

<400> 37552
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaggggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12891

<400> 37553

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12901

<400> 37554
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12911

<400> 37555
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12921

<400> 37556
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37557
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12931

<400> 37557
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12941

<400> 37558
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguaucua a 1701

<210> 37559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12951

<400> 37559
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggagcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguaucua a 1701

<210> 37560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12961

<400> 37560
augaaggcag uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12971

<400> 37561
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12981

<400> 37562
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gcgaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM12991

<400> 37563
augaaggcaa uacuaguagu ucugcuauau acauuugaaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM13001

<400> 37564

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccugaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaagugaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13011

<400> 37565
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caacugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13021

<400> 37566
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuauag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaucugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37567
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13031

<400> 37567
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13041

<400> 37568
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37569
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13051

<400> 37569
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacgucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13061

<400> 37570
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caucuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37571
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13071

<400> 37571

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguu cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13081

<400> 37572
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37573
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13091

<400> 37573
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aacgcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13101

<400> 37574
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37575
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13111

<400> 37575
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugucuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagauccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13121

<400> 37576
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37577
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13131

<400> 37577
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13141

<400> 37578
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37579
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13151

<400> 37579
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucuccuu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13161

<400> 37580
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagagau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37581
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13171

<400> 37581
augaaggcaa uacuaguagu ucugcuauau acguuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM13181

<400> 37582

augaaggcaa uacuaguagu ucugcuauau acguuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13191

<400> 37583
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugagg cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13211

<400> 37584
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37585
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13221

<400> 37585
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37586
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13231

<400> 37586
augaaggcaa uacuaguagu ucugcuauau acauuugaaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37587
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13241

<400> 37587
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13251

<400> 37588
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacgucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37589
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13261

<400> 37589

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13271

<400> 37590
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacgucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau ucaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13281

<400> 37591
augaaggcaa uacuaguagu ucugcuauau acauuugaaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13291

<400> 37592
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg caaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37593
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13301

<400> 37593
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aauguagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aauuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaua gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 37594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13311

<400> 37594
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uauccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggu 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13321

<400> 37595
augaaggcaa uacuaguagu ucugcuauau acauuugcaa cagcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13331

<400> 37596
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13341

<400> 37597
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37598
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13351

<400> 37598
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagagau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguucu 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37599
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13442

<400> 37599
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaucuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37600
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM13443

<400> 37600

augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuuggggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37601
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13444

<400> 37601
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuu aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13445

<400> 37602
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaagau 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuu aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37603
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13446

<400> 37603
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13447

<400> 37604
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uucagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37605
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13448

<400> 37605
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccggca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13449

<400> 37606
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua auccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13450

<400> 37607

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugaggau 420

uucacuugga cugggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

gacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM13451

<400> 37608
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagaacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agugguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcaaccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37609
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADM13452

<400> 37609
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucu gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaagga 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

aauuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14467

<400> 37610
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aguauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37611
<211> 1695
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14516

<400> 37611
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguaa acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14525

<400> 37612
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cauugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagacguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37613
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14553

<400> 37613
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguggagaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14562

<400> 37614
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgag 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37615
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14571

<400> 37615
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14580

<400> 37616
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37617
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14589

<400> 37617
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugggc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM14599

<400> 37618

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaguaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14609

<400> 37619
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14618

<400> 37620
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauaaccauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuagccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37621
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14627

<400> 37621
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14655

<400> 37622
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacguua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaagaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14664

<400> 37623
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14673

<400> 37624
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37625
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14682

<400> 37625

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14691

<400> 37626
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14700

<400> 37627
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ugaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gcuugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggugg 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37628
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14709

<400> 37628
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gucacaguga cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaauaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuugaacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37629
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14718

<400> 37629
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu caaugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37630
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14728

<400> 37630
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacug guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37631
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14737

<400> 37631
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uguauagguu aucaugcgaa caauucaaca gacacuguaa acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gaccaaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaagagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14746

<400> 37632
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gguccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcaa aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37633
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14756

<400> 37633
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14765

<400> 37634
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37635
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14775

<400> 37635
augaaggcaa uauuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugca uuuaa 1695

<210> 37636
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM14802

<400> 37636

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

auaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37637
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14830

<400> 37637
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugaaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

cuacagugua gaauauguau uuaa 1704

<210> 37638
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14848

<400> 37638
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu ggaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguu cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagucaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37639
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14866

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcau aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37640
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADM14876

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37641
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14885

<400> 37641
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaguaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugaaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucaugggucu 1680

cuacagugua gaauauguau uuaa 1704

<210> 37642
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14894

<400> 37642
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uguauagguu aucaugcgaa caauucaaca gacacugugg acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaguaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauga aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37643
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14903

<400> 37643

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga guuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37644
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADM14912

<400> 37644
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcuauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacgcagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37645
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14921

<400> 37645
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugccg accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37646
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14930

<400> 37646
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugggucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37647
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14948

<400> 37647
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaggaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37648
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14966

<400> 37648
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucugg ucauagcugu 1680

agaauaugua uuuaa 1695

<210> 37649
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14975

<400> 37649
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM14985

<400> 37650
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23841

<400> 37651
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23843

<400> 37652
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37653
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23844

<400> 37653
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa aucgcaauaa gacccaaagu gagggaucaa 720

gaagguagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM23845

<400> 37654

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37655
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23846

<400> 37655
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23847

<400> 37656
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa aucgcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uguuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37657
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23849

<400> 37657
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37658
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23851

<400> 37658
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca augguacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagguagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccuaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37659
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23852

<400> 37659
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca augguacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagguagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccuaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37660
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23853

<400> 37660
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccuaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37661
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23855

<400> 37661

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37662
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM23856

<400> 37662
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaag gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacaa acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37663
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM25945

<400> 37663
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37664
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM25948

<400> 37664
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgauuacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37665
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26264

<400> 37665
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37666
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26265

<400> 37666
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37667
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26266

<400> 37667
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuauaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37668
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26267

<400> 37668
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37669
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26268

<400> 37669
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaaa gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37670
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADM26269

<400> 37670
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaaa gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37671
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26270

<400> 37671
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugucuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaagaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacc accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM26271

<400> 37672

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37673
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26272

<400> 37673
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaagaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26274

<400> 37674
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

gacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37675
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM26276

<400> 37675
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuc ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauuu gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaaa gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

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uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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caguguagaa uauguauuua a 1701

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<211> 1701
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

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uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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<210> 37681
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

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aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

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ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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<210> 37682
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

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uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

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auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37683
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADM26284

<400> 37683
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37684
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaua gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37685
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37686
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 37686
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37687
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADM26817

<400> 37687
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag aagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37688
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31424

<400> 37688
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auugguuauc augcaaauaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag cgggauggcu ccucggaaac 240

ccauugugug acgaauucau caaugugcca gaauggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu gaaacaccua 360

uugagcagga uaaaccauuu ugagaaaaua cagaucaucc ccaaagauuc uuggucagau 420

caugaagccu cauuggggu gagcgcagca uguucauacc agggaaauuc cuccuucuuc 480

agaaacgugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaagacuac 540

aauaauacca accaagaaga ucucuuggua cugugggga uucaccaucc uaaugaugag 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaauaaacgg gcaaaguggc 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cuccacaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaggu gucagacucc gauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucaaagagag 1020

agaagaagaa aaagaggacu guuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cacagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aaucuacuca aaaggcaaua gacggaguca ccaacaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guaggaaggg aauuuaauaa cuuagagagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagauguuug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgauaaggu cagacuacag cuuaaggaua augcaaaaga guuggguaac 1440

gguuguuucg aguucuauca caaauguaau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aaucuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucccuagugc uggcaaucau gauggcuggu cugucuuuau ggauguguuc caacgggucg 1680

uuacagugca gaauuugcau uuaa 1704

<210> 37689
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31478

<400> 37689
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acuugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37690
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM31488

<400> 37690

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaggucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa guuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacgcua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 37693
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacguua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<211> 1701
<212> RNA
<213> Artificial Sequence

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 37695
<211> 1701
<212> RNA
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37696
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag guagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37697
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 37697

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uagaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37698
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31568

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu cuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37699
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31578

<400> 37699
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37700
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31588

<400> 37700
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagacggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37701
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31598

<400> 37701
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagaugc accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaauaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31608

<400> 37702
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccguaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37703
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31618

<400> 37703
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37704
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31628

<400> 37704
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37705
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31638

<400> 37705
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31648

<400> 37706
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuuu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37707
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31658

<400> 37707
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM31668

<400> 37708

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37709
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31688

<400> 37709
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcgauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37710
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31698

<400> 37710
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua uuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugauacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37711
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31708

<400> 37711
augaaggcaa uacuaguagu ucugcuauau acauuugaaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37712
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31718

<400> 37712
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37713
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31728

<400> 37713
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca cuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM31738

<400> 37714
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcugguug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaagaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccacccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37715
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31748

<400> 37715

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua uuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucgacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31758

<400> 37716
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagauccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucagucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuauaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31768

<400> 37717
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37718
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31778

<400> 37718
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37719
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31798

<400> 37719
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37720
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31808

<400> 37720
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuauuaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagggccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaaguac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37721
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31818

<400> 37721
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31828

<400> 37722
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaaau cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37723
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31838

<400> 37723
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaaau cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31848

<400> 37724
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37725
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31858

<400> 37725
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauacg aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

gagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM31868

<400> 37726

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcguuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucucaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37727
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31878

<400> 37727
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug aucaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31888

<400> 37728
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37729
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31898

<400> 37729
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31908

<400> 37730
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg aucaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37731
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31918

<400> 37731
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37732
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31928

<400> 37732
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37733
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31948

<400> 37733

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31958

<400> 37734
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37735
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31968

<400> 37735
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucug gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacuagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37736
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31978

<400> 37736
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37737
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM31998

<400> 37737
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucca gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32008

<400> 37738
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37739
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32018

<400> 37739
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32028

<400> 37740
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37741
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32038

<400> 37741
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca augggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32048

<400> 37742
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37743
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32058

<400> 37743
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM32068

<400> 37744

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37745
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32078

<400> 37745
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32088

<400> 37746
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagucu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37747
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32098

<400> 37747
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32108

<400> 37748
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37749
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32551

<400> 37749
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 37750
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32561

<400> 37750
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucca gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37751
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32571

<400> 37751

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32581

<400> 37752
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32591

<400> 37753
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32601

<400> 37754
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37755
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32611

<400> 37755
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32621

<400> 37756
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37757
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32631

<400> 37757
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu uauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu uuaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32641

<400> 37758
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32651

<400> 37759
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32661

<400> 37760
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaacg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32671

<400> 37761
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM32681

<400> 37762

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32691

<400> 37763
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32701

<400> 37764
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37765
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32711

<400> 37765
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32721

<400> 37766
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32741

<400> 37767
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32751

<400> 37768
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32761

<400> 37769

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32771

<400> 37770
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcgaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua aaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37771
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32781

<400> 37771
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagcuu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32791

<400> 37772
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37773
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32801

<400> 37773
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaaaacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggcaauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuugaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32811

<400> 37774
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc ggacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37775
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32821

<400> 37775
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaauguaaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa uggguccccua 1680

caguguagaa uauguauuua a 1701

<210> 37776
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32831

<400> 37776
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37777
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32841

<400> 37777
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucca gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37778
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32851

<400> 37778
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37779
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32861

<400> 37779
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM32871

<400> 37780

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37781
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32881

<400> 37781
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32929

<400> 37782
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37783
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32939

<400> 37783
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caacugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37784
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32949

<400> 37784
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32958

<400> 37785
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguggaguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

cuagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32977

<400> 37786
augaaggcaa uacuaguagu ucugcuaugu acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gucacaguga cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaauaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37787
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32986

<400> 37787

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gucacaguga cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaauaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuugaacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM32995

<400> 37788
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gucacaguga cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca guaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaauaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37789
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33004

<400> 37789
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33023

<400> 37790
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37791
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33040

<400> 37791
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37792
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33050

<400> 37792
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37793
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33069

<400> 37793
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcuauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacgcagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33079

<400> 37794
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33099

<400> 37795
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuaagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aaccuucgaa 780

gcaacuggaa aucuaauggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacuagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37796
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33109

<400> 37796
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuaagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aaccuucgaa 780

gcaacuggaa aucuaauggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacuagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33128

<400> 37797
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM33137

<400> 37798

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33147

<400> 37799
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37800
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33157

<400> 37800
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37801
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33167

<400> 37801
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacguucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33177

<400> 37802
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacguucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cagugcagaa uauguauuua a 1701

<210> 37803
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33186

<400> 37803
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33195

<400> 37804
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37805
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33204

<400> 37805

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uaugcauuua a 1701

<210> 37806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33222

<400> 37806
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37807
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33232

<400> 37807
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagacga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37808
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33241

<400> 37808
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auaacaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37809
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33251

<400> 37809
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33260

<400> 37810
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaauacc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cgcuguagaa uauguauuua a 1701

<210> 37811
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33280

<400> 37811
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagua agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccagg 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgauuu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37812
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33290

<400> 37812
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37813
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33300

<400> 37813
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37814
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33310

<400> 37814
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucga gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37815
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33320

<400> 37815
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacauuu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37816
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM33340

<400> 37816

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuuuaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37817
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33355

<400> 37817
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37818
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33365

<400> 37818
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37819
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33375

<400> 37819
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37820
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33385

<400> 37820
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacauccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37821
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33395

<400> 37821
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37822
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33405

<400> 37822
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37823
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33415

<400> 37823

augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37824
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM33425

<400> 37824
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37825
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM34007

<400> 37825
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua gaagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugau gagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37826
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52443

<400> 37826
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37827
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52453

<400> 37827
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugccggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37828
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52473

<400> 37828
augaaggcaa uacuagcagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuauuaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagggccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaaguac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37829
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52483

<400> 37829
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52493

<400> 37830
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucca gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37831
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52513

<400> 37831
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52524

<400> 37832
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug ggugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37833
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52534

<400> 37833
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37834
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM52554

<400> 37834

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37835
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52564

<400> 37835
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52574

<400> 37836
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auccaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37837
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52584

<400> 37837
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52594

<400> 37838
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37839
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52604

<400> 37839
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52614

<400> 37840
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37841
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52624

<400> 37841

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52634

<400> 37842
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37843
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52644

<400> 37843
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52654

<400> 37844
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37845
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52664

<400> 37845
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52674

<400> 37846
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcuauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37847
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52684

<400> 37847
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug ggugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52704

<400> 37848
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM52714

<400> 37849
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM86399

<400> 37850
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM86409

<400> 37851
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuagucaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM86419

<400> 37852

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuagucaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM86440

<400> 37853
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM86450

<400> 37854
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37855
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95450

<400> 37855
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaua acgggaagcu cugugaucua 180

gauggaguga agccucuaau cuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu auauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaguuc uuggcccagu 420

caugaagccu cauuggggu gagcgcagca uguccauacc aggggaaguc cucuuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aacacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua augugggggga uccaccaucc uaaugaugcg 600

gcagagcaga caaaucucua ucaaaaucca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugacacc aagaauagcu acuagaucca aaguaaacgg gcaaaguggg 720

agaauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaacuuca uugcuccaga guaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuagaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua guaugccauu ccacaauaua cauccucuca ccauuggggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

ggaagaagaa aaaagagagg auuauuugga gcuauagcag guuucauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccauagca augagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggcu auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa caacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uccuggaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uggacuucca ugacucaaau 1380

guaaagaacc uuuacgacaa gguccgauua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag ugugagaaac 1500

gggacguaug acuauccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggagugaaau uggaaucaau aggaauuuac caaauacugu caauuuauuc uacaguggcg 1620

aguucucuag cacuggcaau caugguagcu ggucuauccu uguggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 37856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95745

<400> 37856
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95746

<400> 37857
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95747

<400> 37858
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95749

<400> 37859

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95750

<400> 37860
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucuuu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu agaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaguu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acuugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95751

<400> 37861
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95752

<400> 37862
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37863
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95753

<400> 37863
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95754

<400> 37864
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95755

<400> 37865
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aaucccgagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95757

<400> 37866
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95758

<400> 37867
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95759

<400> 37868
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagacu auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37869
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95760

<400> 37869
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaauua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucucu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM95761

<400> 37870

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37871
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95763

<400> 37871
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaga auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagca 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95764

<400> 37872
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37873
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95765

<400> 37873
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37874
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95767

<400> 37874
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37875
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95768

<400> 37875
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95769

<400> 37876
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37877
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95771

<400> 37877

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuccua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37878
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95772

<400> 37878
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uguauagguu aucaugcuaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37879
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95774

<400> 37879
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37880
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95775

<400> 37880
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

uuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37881
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95776

<400> 37881
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcaucca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37882
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95778

<400> 37882
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaua auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37883
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95779

<400> 37883
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaac caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37884
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95780

<400> 37884
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37885
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95783

<400> 37885
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95784

<400> 37886
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc cuuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95785

<400> 37887
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM95786

<400> 37888

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37889
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95788

<400> 37889
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95789

<400> 37890
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaauggaacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95790

<400> 37891
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagaaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37892
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95791

<400> 37892
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagaaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37893
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<220>
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hemagglutinin__InfluenzaA__ADM95792

<400> 37893
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagaaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37894
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95794

<400> 37895

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37896
<211> 1701
<212> RNA
<213> Artificial Sequence

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aagcucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADM95799

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau ugaaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37899
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagcgccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37900
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADM95801

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95802

<400> 37901
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37902
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95803

<400> 37902
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37903
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95804

<400> 37903
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaaac 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37904
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95805

<400> 37904
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95808

<400> 37905
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM95809

<400> 37906

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37907
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95810

<400> 37907
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gcgaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37908
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95812

<400> 37908
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37909
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95816

<400> 37909
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95819

<400> 37910
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37911
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95820

<400> 37911
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37912
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95821

<400> 37912
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37913
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95822

<400> 37913

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95823

<400> 37914
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37915
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95824

<400> 37915
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37916
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95825

<400> 37916
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37917
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95826

<400> 37917
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37918
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95827

<400> 37918
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37919
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95828

<400> 37919
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37920
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95829

<400> 37920
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37921
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95831

<400> 37921
augaaggcaa uacuaguagu ucugcuauau acauuuguaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acuugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95832

<400> 37922
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95833

<400> 37923
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37924
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM95834

<400> 37924

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37925
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95836

<400> 37925
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95837

<400> 37926
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37927
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95838

<400> 37927
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc uucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95839

<400> 37928
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37929
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95840

<400> 37929
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95842

<400> 37930
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37931
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95843

<400> 37931

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95844

<400> 37932
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37933
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95845

<400> 37933
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaaaca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95846

<400> 37934
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaagcaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37935
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95847

<400> 37935
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95848

<400> 37936
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gcgaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37937
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95849

<400> 37937
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uaaucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37938
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95850

<400> 37938
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37939
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95851

<400> 37939
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacaaca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau ucuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95852

<400> 37940
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagauaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37941
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95854

<400> 37941
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADM95855

<400> 37942

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37943
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95857

<400> 37943
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95858

<400> 37944
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaauua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37945
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95859

<400> 37945
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95860

<400> 37946
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95862

<400> 37947
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95864

<400> 37948
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccagagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37949
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95865

<400> 37949

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADM95866

<400> 37950
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaauaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggucacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gagaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37951
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN06300

<400> 37951
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaauggaga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaucu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucaggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgauauacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37952
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN06311

<400> 37952
augaaaguaa aacuacuggu ccuguuaugc acacuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37953
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN06322

<400> 37953
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuauccaggg cauuucgcug acuaugagga acugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

augguugacc aaaggacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37954
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN06344

<400> 37954
augaagguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauacuccga agaaucgaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37955
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN06366

<400> 37955
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 37956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN26165

<400> 37956
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaggcaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaauuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau cagcaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37957
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN26175

<400> 37957
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN78194

<400> 37958
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuacugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37959
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN78195

<400> 37959
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN78212

<400> 37960

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN78221

<400> 37961
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 37962
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89050

<400> 37962
augaaaguaa aacuacuggu ccuguuaugc acacuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37963
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89061

<400> 37963
augaaaguaa aacuacuggu ccuguuaugc acauucacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaaaacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaaugag auuacaaaca aggugaauuc aguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37964
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89072

<400> 37964
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 37965
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN89083

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagag 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37966
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89094

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacagcacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaaggaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugauc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaacggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37967
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89116

<400> 37967

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaauuugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37968
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89127

<400> 37968
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacgauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcug aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37969
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89149

<400> 37969
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugauc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaagua gccaaaagac ccaaaguaag ggaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagacgguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aguauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 37970
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89171

<400> 37970
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37971
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89182

<400> 37971
augaaaguaa aacuacuggu ccuguuaugc acacuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugccua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga gagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37972
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89193

<400> 37972
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37973
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89204

<400> 37973
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37974
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89215

<400> 37974
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37975
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89226

<400> 37975
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga auagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccguu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaguugga aagaaggaug 1260

gaaaacuuga acaaaaaggu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37976
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89237

<400> 37976
augaaaguaa aacuacuggu ccuguuaugc acacuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37977
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89248

<400> 37977
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagca uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg acacaauaau auuugaggca 780

aauggaaacc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37978
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN89259

<400> 37978

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagag 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37979
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89281

<400> 37979
augaaaguaa aacuacuggu ccuguuaugc acauucacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccaccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucuuug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37980
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89292

<400> 37980
augaaaguaa aacuacuggu ccuguuaugc acauucacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccaccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucuuug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37981
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89303

<400> 37981
augaaaguaa aacuacuggu ccuguuaugc acauucacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccaccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucuuug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37982
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89314

<400> 37982
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacagcuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37983
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN89325

<400> 37983
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37984
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89336

<400> 37984
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaguucac agcaguggc aaagaauuca auaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37985
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89347

<400> 37985

augaaaguaa aacuacuggu ccuguuaugc acauuugcag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga auagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccguu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaguugga aagaaggaug 1260

gaaaacuuga acaaaaaggu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37986
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89358

<400> 37986
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37987
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89369

<400> 37987
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucau cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37988
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89380

<400> 37988
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugccua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga gagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37989
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89391

<400> 37989
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aacccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagauggcu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggggugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37990
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89402

<400> 37990
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa aagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugaaggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccagac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caaucuagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37991
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89413

<400> 37991
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37992
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89424

<400> 37992
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37993
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89435

<400> 37993
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaaaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu ggaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guugaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaaugga auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaagg uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37994
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89446

<400> 37994
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ugcauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cccaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37995
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89457

<400> 37995
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37996
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN89468

<400> 37996

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga uagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucauguuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaaugacc aaaagacccu cuaucauaca gaaaacgcuu auguuucugu agugucuuca 660

cauuauagca ggaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca gcaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug acgaucuacu caacagucgc caguucucug 1620

guucuuuuga ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37997
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89479

<400> 37997
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 37998
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89490

<400> 37998
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauacuccga agaaucgaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 37999
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89501

<400> 37999
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagca uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg acacaauaau auuugaggca 780

aauggaaacc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38000
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89512

<400> 38000
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38001
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89523

<400> 38001
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggaguuaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38002
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89534

<400> 38002
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugccua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga gagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38003
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89545

<400> 38003

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaaaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu ggaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guugaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaaugga auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaagg uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38004
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89556

<400> 38004
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucaa aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38005
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89567

<400> 38005
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 38006
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89578

<400> 38006
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu uuacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38007
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89589

<400> 38007
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaauggaga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaucu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu uuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucaggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgauauacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38008
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89600

<400> 38008
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacgaggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

augguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38009
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89611

<400> 38009
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38010
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89622

<400> 38010
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38011
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89633

<400> 38011
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaaaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu ggaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guugaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaaugga auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaagg uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38012
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89644

<400> 38012
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagca uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg acacaauaau auuugaggca 780

aauggaaacc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38013
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89655

<400> 38013
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaaaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu ggaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuucuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guugaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaaugga auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaagg uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38014
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN89666

<400> 38014

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaauggaga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaucu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucaggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgauauacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38015
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89677

<400> 38015
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagag 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38016
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89688

<400> 38016
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu gcaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagag 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38017
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89699

<400> 38017
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38018
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89710

<400> 38018
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 38019
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89721

<400> 38019
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagca uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg acacaauaau auuugaggca 780

aauggaaacc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38020
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89732

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 38021
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89743

<400> 38021

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac cuaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 38022
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADN89765

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccaccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucuuug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38023
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADN89776

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugauc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaagua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagacgguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 38024
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89787

<400> 38024
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagag 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38025
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89798

<400> 38025
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38026
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89809

<400> 38026
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaagcca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38027
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADN89820

<400> 38027
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaagcca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38028
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADN89831

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38029
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaggc acaauggaaa acuaugccua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38030
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADN89864

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38031
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADN89875

<400> 38031
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38032
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN89886

<400> 38032

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38033
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89897

<400> 38033
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38034
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89908

<400> 38034
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38035
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38036
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38037
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38038
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADN89952

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38039
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89963

<400> 38039

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38040
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89974

<400> 38040
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38041
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89985

<400> 38041
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38042
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN89996

<400> 38042
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38043
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90007

<400> 38043
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38044
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90018

<400> 38044
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38045
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90040

<400> 38045
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38046
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90051

<400> 38046
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38047
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90062

<400> 38047
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38048
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90073

<400> 38048
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38049
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90084

<400> 38049
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38050
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN90095

<400> 38050

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38051
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90106

<400> 38051
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38052
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90117

<400> 38052
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38053
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90128

<400> 38053
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38054
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90139

<400> 38054
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38055
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90150

<400> 38055
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38056
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90161

<400> 38056
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag aagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38057
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90172

<400> 38057

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38058
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90183

<400> 38058
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38059
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90194

<400> 38059
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38060
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90205

<400> 38060
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cggggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38061
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN90216

<400> 38061
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38062
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92467

<400> 38062
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua ccaagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugccuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38063
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92478

<400> 38063
augaagacua ucauugcuuu gagccacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gagguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua ccaagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagagaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38064
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92489

<400> 38064
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gagguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua ccaagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagagaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38065
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92500

<400> 38065
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gagguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua ccaagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagagaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38066
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92510

<400> 38066
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38067
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92520

<400> 38067
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38068
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADN92530

<400> 38068

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38069
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92540

<400> 38069
auggaggcaa uacuaguagu ucuacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg uuggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92550

<400> 38070
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38071
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADN92560

<400> 38071
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO00730

<400> 38072
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu guggaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38073
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO00740

<400> 38073
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38074
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO00750

<400> 38074
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38075
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12143

<400> 38075

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38076
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12153

<400> 38076
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38077
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12163

<400> 38077
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12173

<400> 38078
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38079
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12183

<400> 38079
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12193

<400> 38080
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38081
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12203

<400> 38081
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12213

<400> 38082
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38083
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12223

<400> 38083
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12233

<400> 38084
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38085
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12243

<400> 38085
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga gaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12253

<400> 38086
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38087
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12263

<400> 38087
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12273

<400> 38088
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38089
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12283

<400> 38089
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12293

<400> 38090
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38091
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12303

<400> 38091
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12313

<400> 38092
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38093
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12323

<400> 38093

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga gaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12333

<400> 38094
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaagugaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38095
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12343

<400> 38095
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12353

<400> 38096
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38097
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12363

<400> 38097
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaagugaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38098
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12373

<400> 38098
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua auaauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38099
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12383

<400> 38099
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugaaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38100
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12403

<400> 38100
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38101
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12413

<400> 38101
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gagaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12423

<400> 38102
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38103
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12433

<400> 38103
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADO12443

<400> 38104

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38105
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12453

<400> 38105
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12463

<400> 38106
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38107
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12473

<400> 38107
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc aaaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12493

<400> 38108
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38109
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12503

<400> 38109
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa cgucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aauuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12513

<400> 38110
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagagg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acaagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38111
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12523

<400> 38111

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12533

<400> 38112
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aagauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38113
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12543

<400> 38113
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38114
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12553

<400> 38114
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38115
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12563

<400> 38115
augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38116
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12573

<400> 38116
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38117
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12593

<400> 38117
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacauuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38118
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12603

<400> 38118
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38119
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12613

<400> 38119
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauacg aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38120
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO12623

<400> 38120
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacauucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38121
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO14349

<400> 38121
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaagggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca aaggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38122
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADO14351

<400> 38122

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuugccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38123
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO14353

<400> 38123
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcuga agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaagugaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO14354

<400> 38124
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcuaaugc agacacauua 60

uguauggguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38125
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO14356

<400> 38125
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cagaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO14357

<400> 38126
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuaguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38127
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO14359

<400> 38127
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca aaggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38129
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca augggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

aauagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaacgggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38130
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugcaucg gcuaccaauc aacaaacucc acagaaacug uagacacgcu aacagaaaac 120

aauguuccug uggcacaugc caaagaauug cuccacacag agcacaaugg gaugcuuugu 180

gcaacaaauc ugggacaucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu acuguuggga ggaagagaau gguccuacau cgucgaaaga 300

ccaucggcug uuaauggauu guguuacccc gggaauguag aaaaccuaga agaacuacgg 360

ucacuuuuua guucugcuag uucuuaccaa agaauccaga ucuuuccagg cacaaucugg 420

aaugugucuu acggugggac aagcaaagca uguucagauu cauucuacaa aagcaugaga 480

ugguugacuc aaaagaacaa cgcuuacccu auucaagacg cccaauacac aaauaauaga 540

gggaagaaca uucuuuucau gugggcaua aaucacccac ccaccgauac uacgcagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcaa cagaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc agcagggaag aauugauuau 720

uauuggucgg uauugaaacc aggucagaca uugcgaguaa gauccaaugg gaaucuaauc 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uugaacagug guaacugugu ugugcaaugu cagacagaaa gagguggcuu aaauacuaca 900

uugccauucc acaauguaag uaaguaugca uuugggaacu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu uggucugagg aaugugccug cuagaucaag uagaggacua 1020

uucggggcca uagcuggauu cauagaggga gguuggucag ggcuagucgc ugguugguau 1080

gggguuccagc auucaaauga ucaagggguu gguauggcag cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac auccaaagug aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag guugaaacua gacucaacau gaucaauaau 1260

aagauugaug accaaauuca agacauaugg gcauauaacg cagaauugcu agugcugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcgaauguaa acaaucuaua caauaaagug 1380

aagagggcau uggguuccaa ugcaguggaa gaugggaaag gauguuucga gcuauaccau 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag gagaaaguau 1500

aaagaggaau caagacuaga aagacagaaa auagaagggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 38131
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugcaucg gcuaccaauc aacaaacucc acagaaacug uagacacgcu aacagaaaac 120

aauguuccug uggcacaugc caaagaauug cuccacacag agcacaaugg gaugcuuugu 180

gcaacaaauc ugggacaucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu acuguuggga ggaagagaau gguccuacau cgucgaaaga 300

ccaucggcug uuaauggauu guguuacccc gggaauguag aaaaccuaga agaacuacgg 360

ucacuuuuua guucugcuag uucuuaccaa agaauccaga ucuuuccagg cacaaucugg 420

aaugugucuu acggugggac aagcaaagca uguucagauu cauucuacaa aagcaugaga 480

ugguugacuc aaaagaacaa cgcuuacccu auucaagacg cccaauacac aaauaauaga 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcaa cagaagauau aaauaggacc 660

uucaauccau ugauagggcc aaggccucuu gucaaugguc agcagggaag aauugauuau 720

uauuggucgg uauugaaacc aggucagaca uugcgaguaa gauccaaugg gaaucuaauc 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uugaacagug guaacugugu ugugcaaugu cagacagaaa gagguggcuu aaauacuaca 900

uugccauucc acaauguaag uaaguaugca uuugggaacu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu uggucugagg aaugugccug cuagaucaag uagaggacua 1020

uucggggcca uagcuggauu cauagaggga gguuggucag ggcuagucgc ugguugguau 1080

gggguuccagc auucaaauga ucaagggguu gguauggcag cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac auccaaagug aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag guugaaacua gacucaacau caucaauaau 1260

aagauugaug accaaauuca agacauaugg gcauauaacg cagaauugcu agugcugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcgaauguaa acaaucuaua caauaaagug 1380

aagagggcau uggguuccaa ugcaguggaa gaugggaaag gauguuucga gcuauaccau 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag gagaaaguau 1500

aaagaggaau caagacuaga aagacagaaa auagaagggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 38132
<211> 1683
<212> RNA
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<220>
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aucugcaucg gcuaccaauc aacaaacucc acagaaacug uagacacgcu aacagaaaac 120

aauguuccug uggcacaugc caaagaauug cuccacacag agcacaaugg gaugcuuugu 180

gcaacaaauc ugggacaucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu acuguuggga ggaagagaau gguccuacau cgucgaaaga 300

ccaucggcug uuaauggauu guguuacccc gggaauguag aaaaccuaga agaacuacgg 360

ucacuuuuua guucugcuag uucuuaccaa agaauccaga ucuuuccagg cacaaucugg 420

aaugugucuu acggugggac aagcaaagca uguucagauu cauucuacaa aagcaugaga 480

ugguugacuc aaaagaacaa cgcuuacccu auucaagacg cccaauacac aaauaauaga 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcaa cagaagauau aaauaggacc 660

uucaaaccau acauagggcc aaggccucuu gucaaugguc agcagggaag aauugauuau 720

uauuggucgg uauugaaacc aggucagaca uugcgaguaa gauccaaugg gaaucuaauc 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uugaacagug guaacugugu ugugcaaugu cagacagaaa gagguggcuu aaauacuaca 900

uugccauucc acaauguaag uaaguaugca uuugggaacu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu uggucugagg aaugugccug cuagaucaag uagaggacua 1020

uucggggcca uagcuggauu cauagaggga gguuggucag ggcuagucgc ugguugguau 1080

gggguuccagc auucaaauga ucaagggguu gguauggcag cagauagaga cuuaacucaa 1140

aaggcaauug acaaaauaac auccaaagug aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag guugaaacua gacucaacau gaucaauaau 1260

aagauugaug accaaauuca agacauaugg gcauauaacg cagaauugcu agugcugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcgaauguaa acaaucuaua caauaaagug 1380

aagagggcau uggguuccaa ugcaguggaa gaugggaaag gauguuucga gcuauaccau 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag gagaaaguau 1500

aaagaggaau caagacuaga aagacagaaa auagaagggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 38133
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
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aauguuccug uggcacaugc caaagaauug cuccacacag agcacaaugg gaugcuuugu 180

gcaacaaauc ugggacaucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu acuguuggga ggaagagaau gguccuacau cgucgaaaga 300

ccaucggcug uuaauggauu guguuacccc gggaauguag aaaaccuaga agaacuacgg 360

ucacuuuuua guucugcuag uucuuaccaa agaauccaga ucuuuccagg cacaaucugg 420

aaugugucuu acggugggac aagcaaagca uguucagauu cauucuacaa aagcaugaga 480

ugguugacuc aaaagaacaa cgcuuacccu auucaagacg cccaauacac aaauaauaga 540

gggaagaaca uucauuucau gugggcaua aaucacccac ccaccgauac uacgcagaca 600

aaucuguaca caaggacuga cacaacaaca agugugcaa cagaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc agcagggaag aauugauuau 720

uauuggucgg uauugaaacc aggucagaca uugcgaguaa gauccaaugg gaaucuaauc 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uugaacagug guaacugugu ugugcaaugu cagacagaaa gagguggcuu aaauacuaca 900

uugccauucc acaauguaag uaaguaugca uuugggaacu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu uggucugagg aaugugccug cuagaucaag uagaggacua 1020

uucggggcca uagcuggauu cauagaggga gguuggucag ggcuagucgc ugguugguau 1080

gggguuccagc auucaaauga ucaagggguu gguauggcag cagauagagu cucaacucaa 1140

aaggcaauug acaaaauaac auccaaagug aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag guugaaacua gacucaacau gaucaauaau 1260

aagauugaug accaaauuca agacauaugg gcauauaacg cagaauugcu agugcugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcgaauguaa acaaucuaua caauaaagug 1380

aagagggcau uggguuccaa ugcaguggaa gaugggaaag gauguuucga gcuauaccau 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag gagaaaguau 1500

aaagaggaau caagacuaga aagacagaaa auagaagggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 38134
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25092

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38135
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38136
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25122

<400> 38136
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38137
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25132

<400> 38137
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gauauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaauaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38138
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25142

<400> 38138
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38139
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25152

<400> 38139
augaaggcaa uacuaguagu ucugcuauau acauuugcag ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauu auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaccuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38140
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADO25162

<400> 38140

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38141
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25172

<400> 38141
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38142
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25182

<400> 38142
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38143
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25192

<400> 38143
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38144
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25202

<400> 38144
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcugagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuauaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38145
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25212

<400> 38145
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaaag gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38146
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25222

<400> 38146
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuauaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38147
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25232

<400> 38147

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25242

<400> 38148
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38149
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25252

<400> 38149
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25262

<400> 38150
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38151
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25272

<400> 38151
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aguaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO25282

<400> 38152
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38153
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO27622

<400> 38153
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38154
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29887

<400> 38154
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac gagauuacua acaaaguaaa uucugucauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38155
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29888

<400> 38155
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaga 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38156
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29889

<400> 38156
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacauauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucuuu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38157
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29890

<400> 38157
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaggc agacacauua 60

uguauagguu aucaugcgaa caauucagca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguguug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa cgccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29891

<400> 38158
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaaggaagaa ugaacuauua cuggacacua guagagccgg gagacaaaac aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuaucgga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38159
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29892

<400> 38159
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaggc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggccg gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcaucca ccauccaucu 600

acuaguguug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugguaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38160
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29893

<400> 38160
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucgugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuguu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38161
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29894

<400> 38161
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaugaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaguu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29895

<400> 38162
augaaggcaa uacuaguagc ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaguu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaggcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aacgugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38163
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29897

<400> 38163
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucuuu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaaagug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaag gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gguugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccguu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38164
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29898

<400> 38164
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aagcucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cguacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38165
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29899

<400> 38165

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcgaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagacg cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa cauguauuua a 1701

<210> 38166
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29900

<400> 38166
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gaucucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug accugaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguc caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaagaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuugggc uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38167
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29901

<400> 38167
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuagcuaaa aaaggaaauu cauacccaaa ggucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guugagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38168
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29902

<400> 38168
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucacg acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugccg accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaggugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagcg aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38169
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29903

<400> 38169
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca cugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38170
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29904

<400> 38170
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu agauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccguccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gggggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucaaauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauauggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38171
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29905

<400> 38171
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacgcucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccacccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucaaauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauauggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29906

<400> 38172
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacaggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38173
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29907

<400> 38173
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaagcu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gggacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gacugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29908

<400> 38174
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaauggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuccag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauauggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaccu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38175
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO29909

<400> 38175
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

cguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacauucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga guuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa cgcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcauacagaa ugccauugac gagauuacua acaaaguaaa uucugucauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugauacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 38176
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADO29910

<400> 38176

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

ccaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccgucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaauuggaa aucuaguggu accgagauau gcauucgcaa uggaaaggaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gaggagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38177
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO30407

<400> 38177
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauu auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau cagaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaacgaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38178
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO30417

<400> 38178
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38179
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33202

<400> 38179
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38180
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33240

<400> 38180
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38181
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33247

<400> 38181
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38182
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33254

<400> 38182
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38183
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33261

<400> 38183

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38184
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33269

<400> 38184
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38185
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33277

<400> 38185
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucca gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38186
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33285

<400> 38186
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38187
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33293

<400> 38187
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38188
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33307

<400> 38188
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38189
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33313

<400> 38189
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38190
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33329

<400> 38190
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38191
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33337

<400> 38191
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38192
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33345

<400> 38192
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38193
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33352

<400> 38193
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38194
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADO33360

<400> 38194

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38195
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33368

<400> 38195
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38196
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33376

<400> 38196
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38197
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33384

<400> 38197
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38198
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO33391

<400> 38198
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38199
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79917

<400> 38199
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38200
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79923

<400> 38200
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguacagaca aauggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcuauaa gacccaaagu gagggaucaa 720

gaacggagaa ugaacuauua cuggacacua guacagccgg gagacaaaau aacauuccaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38201
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79924

<400> 38201

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguacagaca aauggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

ccaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua ccacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38202
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79925

<400> 38202
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguacacaug aauggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagcccg gagacaaaau aacauucgaa 780

gcaccuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucaaaau uggaaaaugu 960

ucaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38203
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79926

<400> 38203
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguacagaca aauggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauucucaaa gcucagcaaa 540

accuaccuua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uguuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau gaaaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38204
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79927

<400> 38204
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguacagaca aauggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugc agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

guucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugcaauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau gaaaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38205
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79928

<400> 38205
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguacagaca aauggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38206
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79929

<400> 38206
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguacagaca aauggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38207
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO79930

<400> 38207
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguacagaca aauggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug ggugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38208
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADO84715

<400> 38208
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaacgc aggcacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacauuu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau aggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38209
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADP95341

<400> 38209
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38210
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADP95351

<400> 38210
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38211
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADP95361

<400> 38211
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38212
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADP95371

<400> 38212

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38213
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADP95381

<400> 38213
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38214
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADP95391

<400> 38214
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38215
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28007

<400> 38215
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38216
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28008

<400> 38216
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38217
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28009

<400> 38217
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38218
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28010

<400> 38218
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa guuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38219
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28011

<400> 38219

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38220
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28012

<400> 38220
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaacaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38221
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28013

<400> 38221
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38222
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28014

<400> 38222
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38223
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28015

<400> 38223
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38224
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28016

<400> 38224
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38225
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28017

<400> 38225
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38226
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28018

<400> 38226
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucucguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38227
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28019

<400> 38227
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagcgucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38228
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28020

<400> 38228
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaggcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38229
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28021

<400> 38229
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38230
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28022

<400> 38230
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38231
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28023

<400> 38231
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38232
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28024

<400> 38232
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38233
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28025

<400> 38233
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38234
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28028

<400> 38234
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38235
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28029

<400> 38235
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38236
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28030

<400> 38236
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucgcu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38237
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADQ28031

<400> 38237

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38238
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28032

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38239
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28034

<400> 38239
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacaaua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauagaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38240
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 38240
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaga 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38241
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28036

<400> 38241
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38242
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau ucuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38243
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28038

<400> 38243
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacu gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38244
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28039

<400> 38244
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38245
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADQ28040

<400> 38245
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38246
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38247
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugaugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38248
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38249
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADQ28045

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38250
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28047

<400> 38250
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38251
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28048

<400> 38251
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38252
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28049

<400> 38252
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38253
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28050

<400> 38253
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38254
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28051

<400> 38254
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38255
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28053

<400> 38255

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38256
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28055

<400> 38256
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38257
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28056

<400> 38257
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcagaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38258
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28057

<400> 38258
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cccaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaagaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38259
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28058

<400> 38259
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccggagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugucuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38260
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28059

<400> 38260
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau ggcuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38261
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADQ28060

<400> 38261
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacc 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38262
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28061

<400> 38262
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu agauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug caaauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38263
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28063

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauca cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcag uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38264
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADQ28064

<400> 38264
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaacuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38265
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADQ28065

<400> 38265
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaauaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug gccaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac acaaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38266
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28066

<400> 38266
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccagagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38267
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28067

<400> 38267
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaacugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38268
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28068

<400> 38268
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ucauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38269
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38269
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcugua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38270
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38270
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuauccagga gauuucaucg auuaugagga gcuacgagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc uaaugugaag 1380

aacuuauaug aaaagguaag aagacaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38271
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADQ28071

<400> 38271
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38272
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADR32361

<400> 38272
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38273
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADT78887

<400> 38273

auggcccuca uuuaucucau acuccuguuc acaucaguga ggggggacca gauaugcauu 60

ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccauaacg gaaagcuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaacccg 300

aaauacaguu uguguuaccc aggcagcuuc aaugacuaug aagaauugaa acaucucauc 360

agcagcguaa aacauuucga gaaaguaaag auucugccca aagauggaug gacacagcau 420

acaacaacug gagguucaag ggccugcgcg gugucaggua acccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaccaaau uauccgguug ccaaaggauc guacaacaau 540

acgagcggag aacaaaugcu aauaauuugg ggagugcacc auccuaauga ugaggcagaa 600

caaagagcau uguaccagaa agugggaacc uauguuucug caagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcagcaagg ccugaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg ggucaugaag 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc agcaacuuag agaaaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugacgauga augcauggau agugugaaaa acgggacaua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 38274
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADT78908

<400> 38274
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaaugggaa auuaugcaga 180

uuaaaaggaa aagccccacu acaauuggggg aaauguaaca uugccggaug ggucuuagga 240

aacccagaau gcgaaucauu gcuuuccaau agaucauggu ccuacauugc agaaacacca 300

aacucugaga augggacaug uuacccagga gauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaacaca acacaaccag aggagugacg gcagcaugcu cccaugcgag gaaaagcagu 480

uuuuacaaaa auuuggucug gcugacggag gcaaauggcu cauacccaaa ucugagcaag 540

uccuauguga acaaucaaga gaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagagg aucaaagaac ccucuaucgg aaagauaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acaggagauu caccccagaa auagcaaaaa ggcccaaagu aagagaucaa 720

ccagggagaa ugaacuauua cuggacuuug cuagaacccg gagacacaau aauauuugag 780

gcaacuggaa aucuaauagc accaugguau gcuuucgcac ugaguagagg cccuggauca 840

ggaaucauca ccucaaacgc accaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuucag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaggaguac aaaauugagg augguuacag gacuaaggaa caucccaucc 1020

auccaaucca ggggucuguu uggagccauu gccgguuuca uugaaggggg auggacuggg 1080

augauggaug gaugguaugg uuaccaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa auaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg auauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauua aggaauaaug caaaggaacu aggaaacggg 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaauauuc agaggaauca aaguuaaaca gagaaaagau ugauggagug 1560

aaauuggaau caauggggu cuaucggauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuua 1680

cagugcagaa uaugcaucug a 1701

<210> 38275
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADT78929

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaacgggaa auuaugcaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gcuuucuaag agaucauggu ccuacauugc agaaacacca 300

aacucugaga auggaacaug uuacccagga gauuucgccg acuaugagga acugagggag 360

caauugagcu cagugucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaacaca acauaaccag aggaguaacg gcagcaugcu cccaugcggg gaaaagcagu 480

uuuuacaaaa auuugcucug gcugacggag acaaaaggcu cauacccaaa ucugagcaag 540

uccuauguga acaauaaaga gaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagagg aucaaaagac ccucuaucgg aaagaaaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acaggagauu caccccggaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa ugaacuauua cuggacuuug cuagaacccg gagacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg ccuuggauca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuucag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaagaguac caaauugagg augguuacag gauuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugagggggg auggacugga 1080

augauagaug gaugguaugg uuaccaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa auaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauua aggaauaaug caaaggaaau aggaaacggg 1440

uguuuugagu ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaauauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caauggggu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

caaugcagaa uaugcaucug a 1701

<210> 38276
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<212> RNA
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaacgggaa auuaugcaga 180

uuaaaaggaa aagccccacu acaauuggg aaauguaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gcuuuccaaa agaucauggu ccuacauugc agaaacacca 300

aacucugaga auggaacaug uuacccagga gauuucgccg acuaugagga auugagggag 360

caauugagcu caguaucauc uuucgagaga uucgaaauau uccccaagga aaguucaugg 420

cccaaacaca acacaaccag aggagugacg gcagcaugcu cccaugcgag gaaaagcagu 480

uuuuacaaaa auuugcucug gcugacggag gcaaauggcu cauacccaaa ucugagcaag 540

uccuauguga acaaucaaga gaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagagg aucaaaggac ccucuaucgg aaagaaaaug cuuaugucuc uguaugugucu 660

ucaaauuaua acaggagauu caccccagaa auagcagaaa ggcccaaagu aagaaaucaa 720

gcagggagaa ugaacuauua cuggacuuug cuagaacccg gagacacaau aauauuugag 780

gcaaauggaa aucuaauagc accaugguau gcuuucgcac ugaguagagg ccuuggauca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuucag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg uaaagaguac aaaauugaga augguuacag gacuaaggaa cauaccaucc 1020

auucaaucca ggggucuauu uggagccauu gccgguuuca uugaaggggg auggacuggg 1080

augauggaug gaugguaugg uuaccaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa auaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg auauuuggac auauaaugca 1320

gaauuguuag uucuacugga aaaugaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauua aggaauaaug caaaggaacu aggaaacggg 1440

uguuuugagu ucuaucacaa gugugacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaauauuc agaggaauca aaguuaaaca gggaaaagau ugauggagug 1560

aaauuggaau caaugggggu cuaucggauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc ugguucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuua 1680

cagugcagaa uaugcaucug a 1701

<210> 38277
<211> 1689
<212> RNA

<213> Artificial Sequence

<220>
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gugacucaug ccaaggacau ccuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu aguauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggaaaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguaa aacauuucga gaaaguaaag auucugccca aaaauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggca auccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa uguggaaacc uauguuuccg uaagcacauc aacacugaac 660

aaaaggucaa ccccaaaaau ugcaacaagg ccugaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag cacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaag 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccucuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga ccaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucu 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuc caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguuu aucaaauccu ugucauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 38278
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38279
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccaggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38280
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADT79030

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ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cuggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38281
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADT79050

<400> 38281
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuucg uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gaggucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugaggucaga ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggugca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38282
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADT79108

<400> 38282
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaacgggaa auuaugcaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca uugccggaug gaucuuggga 240

aacccagaau gcgaaucauu gcucucuaau agaucauggu ccuacauugc agaaacacca 300

aacucugaga auggaacaug uuacccagga gauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaacaca acauaaccag aggaguaacg gcagcaugcu cccacgcgaa gaaaagcagu 480

uuuuacaaaa auuugcucug gcugacggag gcaaauggcu cauacccaaa ucugaucaag 540

uccuauguga acaacaaaga gaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagagg aucaaaggac ccucuaucgg aaagaaaaug cuuaugucuc uguggugucu 660

ucaaauuaua acaggagauu caccccggaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa ugaacuauua cuggacuuug cuagaacccg gagacaaaau aauauuugag 780

gcaaauggaa accuaauagc gccaugguau gcuuucgcac ugaguagagg ccuuggauca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuucag aacauacacc cagucacaau aggagagugc 960

ccaaaauaug ucaggaguac caaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugaaggggg auggacugga 1080

augguagaug gaugguaugg uuaccaucau caaaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa auaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu ggaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauug agaaauaaug caaaggaaau aggaaacggg 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaguauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggggu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuucugga uguguuccaa ugggucuuug 1680

caaugcagaa uaugcaucug a 1701

<210> 38283
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADT79119

<400> 38283
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gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

augucuggc ugacaaagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagacau agcaacaagg ccuaaaguga auggacuagg agguagaaug 720

gaauucucuu ggacccuauu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugggaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 38284
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>

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<400> 38284

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gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag agugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

augaucuggc ugacaaagaa aggaucaaau uauccgguug ccaaaggauc guacaacaac 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uagucacauc aacauugaac 660

aaaaggucaa ccccgaaaau agcaacaagg ccuaaaguga auggacuagg agguagaaug 720

gaauucucuu ggacccuauu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcuc cagaguaugg auucaaaaua ucgaaaagag gcaguucagg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cuggcaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaggg cauuugaugg aaucacuaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga gugcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucccugca gugcaggauc 1680

ugcauauga 1689

<210> 38285
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38285
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauaaacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcugguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gacgugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38286
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADT79242

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38287
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADT91182

<400> 38287
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaccacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauacg aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38288
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU20561

<400> 38288
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaauaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38289
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU20562

<400> 38289
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaaa uugcuggaug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38290
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU25478

<400> 38290
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uguguaggcu aucaugcuaa caauuccaca gacacugucg acacaauacu ggagaggaau 120

gugacuguua cccauucagu uaauuugcua gaaagcagcc acaauggaaa acucugcagc 180

cuaaauggaa aggccccauu acaacuggga aacugcaacg uagcaggaug gauccuuggc 240

aacccagaau gcgacuugcu gcucacagug aauucguggu cuuacauaau agagacuuca 300

acuucaaaaa augggggcaug cuauccugga gaauucgcug auuaugagga auuaagggag 360

cagcugagua cgguuucuuc auuugaaaga uuugaaauuu ucccaaaagc aaccucaugg 420

ccaaaucaug agacaaccaa agguacuaca guugcaugcu cccacucugg agcaaacagu 480

uuuuaucgga acuugcuaug gauaguaaaa aagggaaacu ccuauccuaa gcucagcaag 540

ucauacacaa acaacaaagg aaaagaagug cuuguaaucu ggggaguuca ucacccuccg 600

acugacagug aucaacaaac ccuuuaccag aauaaucaca cauauguuuc aguuggauca 660

ucaaaauacu accaaagguu cacaccagaa auagugacca gaccuaaagu cagagagcaa 720

gcgggcagaa ugaauuauua cuggacacua uuagaucaag gagacaccau aacuuuugaa 780

gccacgggga auuuaauagc accauggcau gcauuugcau ugaauaaggg uucuaguucu 840

ggaauuauga ugucggaugc ucauguucac aauugcacua caaagugcca aacuccucau 900

ggggcuuuga aaagcaaucu uccuuuucag aauguacauc ccaucacuau uggagaaugc 960

cccaaauaug uuaaaagcac ccaacuaaga auggcaacag gauuaaggaa uaucccucu 1020

auucaaucca gaggacuuuu uggggcaauu gccggauuca uugaaggagg auggacagga 1080

augauagaug gguggguaugg auaucaccau caaaaugagc agggggucugg uuacgcagca 1140

gaucagaaaa guacacaaau ugcaauugau gggaucagca acaaaguaaa cucaguaauu 1200

gaaaaaauga auguucaauu uacuucagug ggcaaagagu ucaauaaucu agaaaaaagg 1260

auugagaauu ugaauaaaaa ggucgaugau ggauuuuugg auauauggac uuauaacgcu 1320

gaauuacuca uccugcucga gaacgaaaga acccuagauu uccaugacuu uaacgugaaa 1380

aaucuguaug aaagggucaa gucacaacua agaaacaaug ccaaggagau cgguaauggc 1440

uguuuugagu ucuaucacaa auguaauaau gaaugcaugg aaagcguaaa gaauggcaca 1500

uauaauuauc cuagauauuc agaagaaucc aaauugaaua gagaggaaau agacggugua 1560

aaacuagaau caguggggagu ucaucagauu uuggcgaucu acuccacagu cgccaguucc 1620

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caaugcagaa uaugcauuua a 1701

<210> 38291
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59558

<400> 38291

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaagugaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38292
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59579

<400> 38292
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38293
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59590

<400> 38293
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38294
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59601

<400> 38294
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccguu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38295
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59612

<400> 38295
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38296
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59768

<400> 38296
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38297
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59769

<400> 38297
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38298
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59771

<400> 38298
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38299
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59772

<400> 38299
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38300
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59774

<400> 38300
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38301
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU59906

<400> 38301
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38302
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADU59916

<400> 38302

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaagaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38303
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76756

<400> 38303
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38304
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76757

<400> 38304
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38305
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76758

<400> 38305
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38306
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76759

<400> 38306
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38307
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76761

<400> 38307
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccaggg gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38308
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76762

<400> 38308
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggacuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38309
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76764

<400> 38309

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaagcaucu 300

aguucaaaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cauagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38310
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76765

<400> 38310
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaagugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38311
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76766

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38312
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76767

<400> 38312
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38313
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76768

<400> 38313
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcaucugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38314
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76769

<400> 38314
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38315
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76770

<400> 38315
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38316
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76771

<400> 38316
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38317
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76772

<400> 38317
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38318
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76774

<400> 38318
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38319
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76775

<400> 38319
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38320
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADU76776

<400> 38320

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38321
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76777

<400> 38321
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccaggg gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38322
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76778

<400> 38322
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccaggg gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38323
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADU76779

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38324
<211> 1701
<212> RNA
<213> Artificial Sequence

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38325
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38326
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccaggg gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38327
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76784

<400> 38327

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaaaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38328
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76785

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38329
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76786

<400> 38329
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38330
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76787

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augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38331
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76788

<400> 38331
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38332
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76789

<400> 38332
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38333
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76790

<400> 38333
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38334
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76791

<400> 38334
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggacuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38335
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76792

<400> 38335
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38336
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU76793

<400> 38336
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg aacaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38337
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADU85911

<400> 38337
augaaggcaa uaauaguagu cuugcuauau acauuugcaa cugcagaugc ugacacauua 60

uguauaggcu aucaugcaaa uaauucaacu gacacuguug acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc auaacgggaa acuauguaaa 180

cuaggaggga uagccccauu gcauuuaggu aaaugugaca uugcuggaug gcucuuggga 240

aacccagagu gugaaucacu auucacagca agcucauggu ccuacauagu ggaaacgccu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugagga acuaagagag 360

cauuugagcu cugugucguc auuugaaagg uuugaaauau uccccaaggc aaauucaugg 420

cccaaucaug auacgaauaa gggggugacg gcagcauguc cuuaugcugg agcaaacagc 480

uuuuacagaa auuuaauaug gcuaguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acaauaagaa gaaggaaguc cucgugauau ggggcaucca ccauccaccu 600

accaguacug accaacaaac ucucuaccag aaugcagaug ccuauguuuu ugugggguca 660

ucaaaauaca gcaaaagauu caagccagaa auagcagcaa gacccaaggu gagggaucaa 720

gcaggaagaa uggacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg cucuggaucu 840

gguauuaucg uuucagaugc accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaguugagg auggcuacag gauuaagaaa uaucccgucu 1020

auucaaucaa gaggccuauu uggggccauu gcuggcuucc uugaaggggg guggacagga 1080

augauagaug gaugguacgg uuaccaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccaaaaga gcacacagaa ugccauugac gggaucacua acaagguaaa uucuaucauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucagccaauu ggaaaaaaga 1260

auagagaguu uaaacaauaa gguugaugau gggguucuuag auauuuggac uuacaaugcc 1320

gaacugcugg uccuauugga aaaugaaaga acucuagauu aucacgauuc aaaugugaag 1380

aaccuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aagcuaaaca gagaggagau agauggggua 1560

aagcuggaau cagcaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uuggugcugu uagucucucu gggggcaauc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uaugcaucug a 1701

<210> 38338
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADV17283

<400> 38338

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ucauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38339
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV17293

<400> 38339
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38340
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV17303

<400> 38340
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa auuuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccaaag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38341
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV17313

<400> 38341
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ucauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38342
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV17323

<400> 38342
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaagg ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uuauguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38343
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV17333

<400> 38343
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaaa ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu acugagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu acuacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggugaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38344
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV19019

<400> 38344
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38345
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV41677

<400> 38345

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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38346
<211> 1701
<212> RNA
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hemagglutinin__InfluenzaA__ADV58939

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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugagacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38347
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV69074

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uguauaggcu aucaugccaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguaa cacacucugu caaccuacuu gaggacaguc acaauggaaa auuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aauugcaacg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu cuuacauugu agaaacacca 300

gauccugaga auggaacaug uuacccaggg uauuucaccg auuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uuugaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcagcuuu 480

uacagaaauu ugcuauggcu gacggugaaa aacgguuugu acccaaaccu gagcaaaucc 540

uauacaaacg acaaagagaa agaaguccuu guacuauggg guguucauca cccaccuagc 600

auaggggacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagua gaagauucac cccagagaua gucaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau augugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu aggaucagga 840

aucaucaccu caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuccc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa acugagaaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggaua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agagucaaag cuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa uggaagucua ucagauccug gcgaucuacu caacagucgc caguucucua 1620

gucuuuuuag ucgcccuggg ggcaaucugc uucuggaugu guuccaaugg gucuuugcag 1680

uguaaaauau gcaucuaa 1698

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<212> RNA
<213> Artificial Sequence

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uguauaggcu aucaugccaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguaa cacacucugu caaccuacuu gaggacaguc acaauggaaa auuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aauugcaacg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu cuuacauugu agaaacacca 300

gauccugaga auggaacaug uuacccaggg uaugucaccg auuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uuugaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcagcuuu 480

uacagaaauu ugcuauggcu gacggugaaa aacgguuugu acccaaaccu gagcaaaucc 540

uauacaaacg acaaagagaa agaaguccuu guacuauggg guguucauca cccaccuagc 600

auaggggacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagua gaagauucac cccagagaua gucaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau augugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuccc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa acugagaaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucauccc aaugagcaag gaucuggaua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaagguca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agagucaaag cuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa uggaagucua ucagauccug gcgaucuacu caacagucgc caguucucua 1620

gucuuuuuag ucgcccuggg ggcaaucugc uucuggaugu guuccaaugg gucuuugcag 1680

uguaaaauau gcaucuaa 1698

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<211> 1698
<212> RNA

<213> Artificial Sequence

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uguauaggcu aucaugccaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguaa cacacucugu caaccuacuu gaggacaguc acaauggaaa auuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aauugcaacg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu cuuacauugu agaaacacca 300

gauccugaga auggaacaug uuacccaggg uauuucaccg auuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uuugaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcagcuuu 480

uacagaaauu ugcuauggcu gacggugaaa aacgguuugu acccaaaccu gagcaaaucc 540

uauacaaacg acaaagagaa agaaguccuu guacuauggg guguucauca cccaccuagc 600

auaggggacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagua gaagauucac cccagagaua gucaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuccc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa acugagaaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggaua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agagucaaag cuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa uggaagucua ucagauccug gcgaucuacu caacagucgc caguucucua 1620

gucuuuuuag ucgcccuggg ggcaaucugc uucuggaugu guuccaaugg gucuuugcag 1680

uguaaaauau gcaucuaa 1698

<210> 38350
<211> 1698
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__ADV69078

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uguauaggau accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguaa cacacucugu caaccuacuu gaggacaguc acaaugggaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuacccaggg gaguucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cugcagccgg agugucagca ucaugcuccc auaaugggga aaaaaguuuu 480

uacagaaauc ugauauggcu gacaaagaaa aaugguuugu acccaaaccu gagcaagucc 540

uaugaaaacg acaaagagaa agaaguccuu auacuauggg guguucauca uccgccuaac 600

auagagaacc aaaggacccu cuaucgcaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagcg gaagguucac cccagaaaua accaaaaggc ccaaaguaag aaaucaggaa 720

gggagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucacacuga guagaggccu uggaucagga 840

aucaucaccu cuaaugcacc aauggacgaa ugugaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagcucuaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcagg gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaua cucaauucac agcugugggc aaggaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua caaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggacuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg gaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggaguuaaa 1560

uuggacucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucccua 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 38351
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<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV69079

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uguauaggcu accaugccaa caacucaacc gacacaguug acacaguacu ugagaagaau 120

gugacaguua cacacucugu caaccuacuu gaggacaguc acaauggaaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaguuacu gauuuccaag aaaucauggu ccuacauugu aaaaacacca 300

aauccugaaa auggaucaug uuacccaggg uauuucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaaugu uccccaaaga aagcucaugg 420

cccaaccaca acguaaacgg aguaucagca ucaugcuccc auaaugggaa aagaaguuuu 480

uacagaaauc ugcuauggcu gacgggaaaa aaugguuugu auccaaaccu gaccaagucc 540

uaugaaaaca acaaugagaa agagguccuu auacuauggg guguucauca cccgucuaau 600

auaggggacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu aaugucuuca 660

cauuauagca gaagauucac cccagaaaua aacaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuauuacug gacucugcua gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caagugcacc aauggaugaa ugugaugcga agugucaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uuaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ccaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggauuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggacucaa ugggggucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 38352
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV69080

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uguauaggau accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaaugggaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aauccagaau gcgaaucacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuacccaggg gaguucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cugcagccgg agugucagca ucaugcuccc acaaugggga aagaaguuuu 480

uacagaaauc ugauauggcu gacaaugaaa aaugguuugu acccaaaccu gagaaagucc 540

uaugaaaacg acaaagagaa agaaguccuu auacuauggg guguccauca uccgccuaac 600

auagagaacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagcg gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucuucug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucacacuga guagaggccu uggaucagga 840

aucaucaccu cuaaugcacc aauggacgca ugugaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcagg gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaggaauuca acaaauugga aagaaggaua 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuuauagaca uuuggacuua caaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggacuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg gaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggaguuaaa 1560

uuggacucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucccua 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuag 1698

<210> 38353
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV69081

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uguauaggcu aucaugccaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguaa cacacucugu caaccuacuu gaggacaguc acaauggaaa auuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aauugcaacg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu cuuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucaccg auuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uuugaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacagaaauu ugcuauggcu gacggugaaa aacgguuugu acccaaaacu gagcaaaucc 540

uauacaaacg acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaagggacc aaaggacccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagua gaagauucac cccagaaaua gucaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugag uguaaugcaa agugucaaac accucaggga 900

gcuauaauca gcagucugcc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa acugaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg ggcuauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggaua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agagucaaag cuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa uggaagucua ucagauccug gcgaucuacu caacagucgc caguucucua 1620

gucuuuuuag ucgcccuggg ggcaaucugc uucuggaugu guuccaaugg gucuuugcag 1680

uguaaaauau gcaucuaa 1698

<210> 38354
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV69083

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uguguaggcu accaugccaa caacucaacu gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca acguaaccgg aguaucauca ucaugcuccc auaacgggaa aagcagcuuc 480

uacagaaauu ugcuauggcu gacggugaag aacggucugu acccaaaccu gagcaagucc 540

uauacaaaca aaaaggagaa agaaguccuu guacuauggg guguucauca cccaucuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacccugcua gaacccgggg auacaauaau auuagaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaacuga guaaggguuu gggaucagga 840

aucaucacau caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag uaacaauagg agagugucca 960

aaguauguca aaagugcaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagac 1140

caacaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc ugugauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaacugga aagaagaaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua uaauauccug gcgaucuacu caacagucgc caguucccua 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

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<211> 1698
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__ADV69084

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uguguaggau accaugccaa caacucaacu gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggaa 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaucaca acguaaccgg agugucauca ucaugcuccc auaacgggaa aagcagcuuc 480

uacagaaauu ugcuauggcu gacggugaag aacgguuugu acccaaaccu gagcaagucc 540

uauacaaaca aaaaggagaa agaaguucuu auacuauggg guguucauca cccaucuaac 600

auaagggacc aaagggcccu cuauuauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaauuga guaaggguuu uggaucaggg 840

aucaucacau cagacgcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag uaacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagac 1140

caacaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaagau ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuu uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua uaauauccug gcgaucuacu caacagucgc caguucccua 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 38356
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADV69085

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uguguaggcu accaugccaa caacucaacu gacacuguug acacaguacu ugagaagaau 120

gugacaguaa cacacucugu caaccuacuu gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg agugucauca ucaugcuccc auaacgggaa aagcagcuuc 480

uacagaaauu ugcuauggcu gacgaugaag aacgguuugu acccaaaccu gagcaagucc 540

uauacaaaca aaaaggagaa agaaguccuu guacuauggg guguucauca cccaucuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaacuga guaaggguuu uggaucagga 840

aucaucacau caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag uaacaauagg agagugucca 960

aaguauguca ggaguucaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagac 1140

caacaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaagau ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua uaauauccug gcgaucuacu caacagucgc caguucccua 1620

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uguagaauau gcaucuaa 1698

<210> 38357
<211> 1698
<212> RNA
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uguauaggcu aucaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguaa cacacucugu caaucuacuu gaggacaguc acaauggaaa auuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aauugcaacg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu cuuacauugu agaaacacca 300

aacccugaga auggaacaug uuacccaggg uauuucaccg acuaugaaga acugagggaa 360

caauugaguu caguaucuuc auuuaagagg uuugaaauau uccccaaaga gagcucaugg 420

cccaaacaca ccguaaccgg agugucagca ucaugcuccc auaacgggaa aagcagcuuu 480

uacagaaauu ugcuauggcu aacggggaag aacgguuugu acccaaaccu gagcaaaucc 540

uauacaaacg acaaagaaaa agaaguccuu guauuauggg guguucauca cccgucaaac 600

auaggggacc aaagggcccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gucaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauu uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa uguaauacaa agugucaaac accucaggga 900

gcuauaaaca gcagccuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaauauguca agagugcaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucaa aaugagcaag gaucuggaua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc acgacuccaa cgugaaaaau 1380

cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugc 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agagucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa uggaagucua ucagauccug gcgaucuacu caacagucgc caguucucua 1620

gucuuuuuag ucucccuggg ggcaaucugc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38358
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV69087

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uguguaggcu accaugccaa caacucaacu gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaacgg agugucauca ucaugcuccc auaacgggga aagcagcuuc 480

uacagaaauu ugcuauggcu gacggugaag gacgguuugu acccaaaccu gagcaagucc 540

uauacaaaca aaaaggagaa agaaguccuu guacuauggg guguucauca cccaucuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaacuga guaaggguuu uggaucagga 840

aucaucacau caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuccc uuuccagaau guacacccag uaacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagau 1140

caacaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaagau ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua uaauauccug gcgaucuacu caacagucgc caguucccua 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 38359
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV69088

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uguauaggcu accaugccaa caacucaacc gacacaguug acacaguacu ugagaagaau 120

gugacaguua cacacucugu caaucuacuu gaggacaguc acaauggaaa gcugugccua 180

cuaaagggaa uagccccucu acaauugggu aauugcagcg uuaccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuacccaggg uauuucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca acguaaacgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauc ugcuauggcu gacggggaaa aaugguuugu acccaagccu gaccaaaucc 540

uaugcaaacg acaaagagaa agaaguccuu auacuauggg guguucauca cccgucuaac 600

auaggggacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu aaugucuuca 660

cauuauagca gaagauucac cccagaaaua uccaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caagugcacc aauggaugca ugcgaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggaguacaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc ccuucauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggauuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaau ccaauuaaag aauaaugcca aagaaauagg aaaugggugc 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugagaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggacucaa ugggggucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuag 1698

<210> 38360
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV69089

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uguauaggcu accaugccaa caacucaacc gacacaguug acacaguacu ugagaagaau 120

gugacaguua cacacucugu caaucuacuu gaggacaguc acaauggaaa gcuuugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagagu gcgaauuacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuacccaggg uauuucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca acguaaacgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauc ugcuauggcu gacggggaaa aaugguuugu acccaaaccu gaccaagucc 540

uaugcaaaca acaaagagaa agaaguccuu auacuguggg guguucauca cccgucuaac 600

auaggggacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu aaugucuuca 660

cacuauagca gaagauucac cccagaaaua accaaaaggc ccaaaauaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgggg auacaauaau auaugaggca 780

aaugggaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caagugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guaaaugggu gguaugguua ucgucuucac aaugaccaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaacgc ccuuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaggaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagag 1320

auguugguuc uacuggaaaa ugaaagaacu uuggauuucc acgacuccaa ugugaagagu 1380

cuauacgaga gaguaaaaau ucaauuaaag aauaaugcca aagaaauagg aaaugggugc 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugagaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggacucaa ugggggucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 38361
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV69090

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uguauagggu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacgaggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

cuaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

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cuaaaaggaa uagcuccacu acaauugggc aauugcaacg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu cuuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucaccg acuaugaaga acugagggaa 360

caauugaguu caguaucuuc auuuaagagg uuugaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcagcuuu 480

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uauacaaacg acaaagagaa agaaguccuu guauuauggg guguucauca cccgucaaac 600

auaggggacc aaagggcccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

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gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

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cuaaaaggaa uagcuccacu acaauugggc aauugcaacg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu cuuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucaccg acuaugaaga acugagggaa 360

caauugaguu caguaucuuc auuuaagagg uuugaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcagcuuu 480

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cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugc 1440

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gacuauccaa aauauuccga agagucaaag uuaaacaggg agaagauuga uggagugaaa 1560

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gugacaguga cacacucugu caaccuacuu gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggga uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucuuggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uaugucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg agugucauca ucaugcuccc auaacgggaa aagcagcuuc 480

uacagaaauu ugcuauggcu gacggugaag aacggucugu acccaaaccu gagcaagucc 540

uauacaaaca aaaaggagaa agaaguccuu guacuauggg guguucauca cccaucuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacccugcua gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaacuga guaaggguuu uggaucagga 840

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gcuauaaaca gcagucuucc uuuccagaau guacacccag uaacaauagg agagugucca 960

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cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

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gugacaguga cacacucugu caaccuacuu gaggacagcc acaauggaaa acuaugucua 180

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caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg agugucauca ucaugcuccc auaacgggaa aagcagcuuc 480

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auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

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ggaagaauca acuacuacug gacccugcua gaacccgggg auacaauaau auuugaggca 780

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caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

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cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

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cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gaaucauggu ccuacauugu agaaccacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaacgg agugucauca ucaugcuccc auaacgggga aagcagcuuc 480

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aauggaaauc uaauagcacc aagguaugcc uucgaacuga guaaggguuu uggaucagga 840

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cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

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cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuaggg 240

aacccagagu gcgaacugcu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg agugucauca ucaugcuccc auaacgggaa cagcagcuuc 480

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cauuauagca gaagauucaa cccagaaaua gccaagagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaacuga guaaggguuu uggaucagga 840

aucaucacau caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

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aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacac cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggaggaug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucac aaugagcaag gaucuggaua ugcugcaaac 1140

caaaaaagca caccaaaugc cauuaacggu auuacaaaca aagugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaaccuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaagaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua uaauauccug gcgaucuacu caacagucgc caguucccua 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 38370
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hemagglutinin__InfluenzaA__ADV69099

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gugacaguga cacacucugu caaccuacuu gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuaggg 240

aacccagagu gcgaacugcu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg agugucauca ucaugcuccc auaacgggaa cagcagcuuc 480

uacagaaauu ugcuauggcu gacggugaag aacgguuugu acccaaaccu gagcaagucc 540

uauacaaaca aaaaggagaa agaaguccuu guacuauggg guguucauca cccaucuaac 600

auagaggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucaa cccagaaaua gccaagagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaacuga guaaggguuu uggaucagga 840

aucaucacau caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcaaucuucc uuuccagaau guacacccag uaacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacac cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggaggaug gacuggaaug 1080

guaaaugguu gguaugguua ucaucaucac aaugagcaag gaucuggaua ugcugcaaac 1140

caacaaagcc caccaaaugc cauuaacggu auuacaaaca aagugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaaccuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaagaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua uaauauccug gcgaucuacu caacagucgc caguucccua 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 38371
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<212> RNA
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hemagglutinin__InfluenzaA__ADV69100

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uguauaggau accaugccaa caacucaacc gacacuguug acacagugcu ugaaaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaaugggaa acugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aagccugaga auggaacaug uuacccaggg gaguucgcug acuaugagga gcuaagagag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cugcagccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacaaaaauc ugauauggcu gacagugaaa aaugguuugu acccaaacuu gagcaagucc 540

uauaaaaacg acaaagagaa agaaguccuu auacuauggg guguucauca uccgccuaac 600

auagagaacc aaaggacccu cuaucacaca gaaaauacuu augucucugu agugucuuca 660

cauuauagcg gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

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aaugguaauc uaauagcgcc augguaugcu uucacacuga guagaggccu uggaucagga 840

aucgucaccu cuaaugcacc aauggacaaa ugugaugcga agugucaaac accucaugga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcagg gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aagugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaggaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua caaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggacuucc acgauuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg gaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggaguuaaa 1560

uuggacucaa ugggggucua ucggauuuug gcgaucuacu cgacugucgc caguucccua 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuag 1698

<210> 38372
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<212> RNA
<213> Artificial Sequence

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uguauaggau accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaaugggaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuacccaggg gaguucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cugcaaccgg agugucagcc ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauc ugauauggcu gacagugaaa aaugguuugu acccaaaccu gagcaagucc 540

uaugaaaacg acaaagagaa agaaguccuu auacuauggg guguucauca uccgccuaac 600

auagagaacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagcg gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucacacuga guagaggccu uggaucagga 840

aucaucaccu cuaaugcacc aauggacgaa ugugauucga agugucaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcagg gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaacc cucaauucac agcugugggc aaggaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa acaaaaaggu ugaugauggg uuucuagaca uuuggacaua caaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggacuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg gaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggaguuaaa 1560

uuggacucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuag 1698

<210> 38373
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<212> RNA
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uguauaggau accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaaugggaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuacccaggg gaguucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cugcaaccgg agugucagcc ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauc ugauauggcu gacagugaaa aaugguuugu acccaaaccu gagcaagucc 540

uaugaaaacg acaaagagaa agaaguccuu auacuauggg guguucauca uccgccuaac 600

auagagaacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagcg gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucacacuga guacaggccu uggaucagga 840

aucaucaccu cuaaugcacc aauggacgaa ugugauucga agugucaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcagg gaucuggaua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaggaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa acaaaaaggu ugaugauggg uuucuagaca uuuggacaua caaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggacuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg gaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggaguuaaa 1560

uuggacucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuag 1698

<210> 38374
<211> 1698
<212> RNA
<213> Artificial Sequence

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<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADV69103

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gugacaguga cacacucugu caaccuacuu gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca acguaaccgg agugucauca ucaugcuccc auaacgggaa aagcagcuuc 480

uacagaaauu ugcuauggcu gacggugaag aacggucugu acccaaaccu gagcaagucc 540

uauacaaaca aaaaggagaa agaaguccuu guacuauggg guguucauca cccaucuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacccugcua gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaauuga guaaggguuu uggaucagga 840

aucaucacau caaaugcacc aauaggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guaaacccag uaacaauagg agagugucca 960

aaguauguca aaagugcaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagac 1140

caacaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc ugugauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaacugga aagaagaaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua uaauauccug gcgaucuacu caacaguagc caguucccua 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 38375
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV69104

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uguauaggau accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaaugggaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuacccaggg gaguucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgagauau uccccaaaga aagcucaugg 420

cccaaccaca cugcaaccgg agugucagcc ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauc ugauauggcu gacagugaaa aaugguuugu acccaaaccu gagcaagucc 540

uaugaaaacg acaaagagaa agaaguccuu auacuauggg guguucauca uccgccuaac 600

auagagaacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagcg gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucacacuga guagaggccu uggaucagga 840

aucauuaccu cuaaugcacc aauggacgaa ugugauucga agugucaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggaua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaggaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa acaaaaaggu ugaugauggg uuucuagaca uuuggacaua caaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggacuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg gaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggaguuaaa 1560

uuggacucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuag 1698

<210> 38376
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV69105

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uguauaggau accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaaugggaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuacccaggg gaguucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cugcagccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauc ugauauggcu gacagugaaa aaugguuugu acccaaaccu gagcaagucc 540

uauaaaaacg acaaagagaa agaaguccuu auaauauggg guguucauca uccgccuaac 600

auagagaacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagcg gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucacacuga guagaggccu uggaucagga 840

aucaucaccu cuaaugcacc aauggacgaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggaug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcagg gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cccaauucac agcugugggc aaggaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua caaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggacuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg gaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggaguuaaa 1560

uuggacucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucccua 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuag 1698

<210> 38377
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV69106

<400> 38377
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gugacaguua cacacucugu caaccuacuu gaggacaguc acaauggaaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag aagucauggu ccuacauugu agaaacacca 300

aauccuggga auggagcaug uuacccaggg uauuucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaaugu uccccaaaga aagcucaugg 420

cccaaccaca acguaaacgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacaggaauc ugcuauggcu gacgaggaaa aaugguuugu auccaaaccu gaccaagucc 540

uaugcaaaca acaaugauaa agaaguccuu auacuauggg guguucauca cccgucuaac 600

auaggggacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu aaugucuuca 660

cauuauagca gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc augguaugcu uucgcacuga guagaagcuu uggaucagga 840

aucaucaccu caagugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaagaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aaaaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggauuucc acgacuccaa ugugaaaagu 1380

cuguacgaga aaguaaaaau ccaauuaaag aauaaugcca aagaaauagg aaaugggugc 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugagaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggacucaa ugggggucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 38378
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gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag gaaucauggu ccuacauugu agaaacaccu 300

aauucugaua auggagcaug uuacccaggg caguucaccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgagauau uccccaaaga aagcucaugg 420

cccaaccaca cuguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauc ugauauggcu gacagugaaa aaugguuugu acccaaaccu gagcaagucc 540

uaugaaaacg acaaagagaa agaaguccuu auauuauggg guguucauca uccgcccaac 600

auaggggacc aaaggacacu cuaucacaca gaaaaugcuu auaucucugu agugucuuca 660

cauuauagcg gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggccu uggaucagga 840

aucaucaccu cuaaugcacc aauggacaaa ugugaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaauauguca ggaguacaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggaug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaggaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua caaugcagag 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggacuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg aaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugagaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggacucaa ugggggucua ucggauucug gcgaucuacu caacugccgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uuuuggaugu guuccaaugg gucuuugcaa 1680

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gugacaguaa cacacucugu caaccuacuc gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aguugcagcg uugccggaug gaucuuagga 240

aacccagagu gcgaauugcu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucacag acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg agugucauca ucaugcuccc auaacgggaa aagcagcuuc 480

uacagaaauu ugcuauggcu gacgaugaag aacgguuugu acccaaaccu gagcaagucc 540

uauacaaaca aaaaggagaa agaaguccuu guacuauggg guguucauca cccaucuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag aaaucaggaa 720

ggaagaauca acuacuacug gacucugcua gaacccgagg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguaugcc uucgaacuga guaaggguuu uggaucagga 840

aucaucacau caaaugcacc aaugggugaa uguaaugcaa agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag uaacaauagg agagugucca 960

aaguauguca ggaguucaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggaua ugcugcagac 1140

caacaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaagau ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaaa aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucauaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua uaauauccug gcgaucuacu caacagucgc caguucccua 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

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gugacaguga cacacucugu caaccuacuu gaggacaguc acaaugggaa gcugugccua 180

cuaaagggaa uagccccccu acaauugggu aauugcagcg uugccggaug gauauuagga 240

aacccagaau gcgaaucacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggagcaug uuauccaggg gaguuugccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cugcaaccgg agugucagcg ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauc ugauauggcu gacagugaaa aaugguuugu acccaaaccu gagcaagucc 540

uaugaaaacg acaaaaagaa agaaguccuu auacuauggg guguucauca uccgccuaac 600

auagagaacc aaaggacccu cuaucacaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagug gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacuuugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucacacuga guagaggccu uggaucagga 840

aucaucaccu cuaaugcacc aauggacgaa ugugaugcga agugucaaac accuaaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcagg gaucuggcua ugcugcagau 1140

caagaaagca cacaaaaugc cauuaacggg aucacaaaca aagugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaggaauuca acaaauugga aagaaggaug 1260

gagaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua caaugcagag 1320

uuguugguuu uacuggaaaa ugaaagaacu uuggacuucc acgacuccaa ugugaagagu 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg gaaugggugc 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggaguuaaa 1560

uuggacucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucccua 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

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<212> RNA
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<400> 38381

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auagugaaaa caauaacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu aaauugguug acccacuuaa gauucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacacca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 38382
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 38383
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 38384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa agccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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aggugcaaca uuugcauuug a 1701

<210> 38385
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV76620

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 38386
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaaugguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga uacacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaag ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38387
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uucagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

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<210> 38388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagaacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agugguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcaaccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

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<211> 1701
<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuuggggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua auccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca aaagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38390
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV76694

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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aggugcaaca uuugcauuug a 1701

<210> 38392
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADV76705

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38394
<211> 1701
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<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga aaaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADV91009

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaaaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uagaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gacuugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucugucauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagucaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADV91010

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaccg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38397
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguguaggcu accaugccaa caauuccaca gacacugucg acacaauacu ggagaaaaau 120

gugacuguua cccauucagu uaauuuacug gaaaacagcc auaaugggaa acucugcagc 180

cugaauggaa agauccccuu acaacuggggg aacugcaacg uagcaggaug gauccuuggc 240

aacccaaaau gugacuugcu gcucacagcg aauucguggu cuuacauaau agagacuuca 300

aauucaaaaa auggagcaug cuaccccgga gaauucgcug auuaugaaga guuaaaggag 360

cagcugagua caguuucuuc auuugaaaga uuugaaauuu ucccaaaggc aaccucaugg 420

ccaaaccaug auaccaccag agguaccaca guugcaugcu cccacucugg agccaacagc 480

uuuuaucgga auuuacuaug gauaguaaag aaaggaaacu ccuauccuaa gcucagcaag 540

ucauacacaa acaauaaggg aaaggaagug cuuguaauuu ggggagugca ccacccuccg 600

accgacagug accaacaaac ccucuaccag aauaaucaua cauauguuuc aguuggauca 660

ucaaaauacu acaaaaggcu cacaccagaa auaguagcaa gaccuaaagu cagagaacaa 720

gcaggcagaa ugaauuauua cuggacacug uuagaucaag gggacaccau aacuuuugaa 780

gccacuggga auuuaauagc accauggcac gcauuugcau ugaaaaaagg cucuaguucu 840

ggaauuauga ggucggaugc ucagguucac aauugcacua caaagugcca aacuccccau 900

ggggccuuga aaggcaaucu uccuuuucag aauguacauc ccgucacuau uggagaaugc 960

cccaaauaug uuaaaagcac ccaacugaga auggcaacag gacuaaggaa uaucccccucu 1020

auucaaucca gaggacuuuu cggggcaauu gccggauuca uugaaggagg auggacagga 1080

augguagaug gaugguaugg auaucaccau cgaaaugagc agggaucugg uuacgcagca 1140

gaucagaaaa gcacacaaau ugcaauugau gggauaagua acaaagugaa cucagugauu 1200

gaaaaaauga acauucaauu uacuucagug ggcaaggagu ucaauagucu agagaaaagg 1260

auggaaaauu ugaauaagaa gguugaugau gggguuuuugg auguauggac auauaacgcu 1320

gaguugcuca uuuuacucga gaaugaaagg acucuagauu uccaugaccu uaacguaaaa 1380

aauuuauaug aaaaggucaa aucacaacua aggaacaaug ccaaggaaau cggaaauggc 1440

ugcuuugagu ucuaucacaa augugauaau gagugcaugg aaagcguaaa gaauggcaca 1500

uacaauuauc ccaaauauuc agaagaaucc aaauuaaaua gggaggaaau agauggugug 1560

aaacuagaau caaugggaau ucaccagauu uuggcgaucu acuccacagu cgccaguucc 1620

cuggucuuau uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucauug 1680

caaugcagag uaugcauuua a 1701

<210> 38398
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADW09101

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38399
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09111

<400> 38399

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gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aaguucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugaucaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38400
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09120

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaaaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggugggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38401
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09131

<400> 38401
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38402
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09153

<400> 38402
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaagaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38403
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09164

<400> 38403
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38404
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09186

<400> 38404
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38405
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09197

<400> 38405
augaaaguga aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38406
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09208

<400> 38406
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38407
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09219

<400> 38407
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38408
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09230

<400> 38408
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38409
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09241

<400> 38409
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga aaugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38410
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADW09252

<400> 38410

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38411
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09274

<400> 38411
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagccc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38412
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09285

<400> 38412
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaac auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38413
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09296

<400> 38413
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaaugga auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38414
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09307

<400> 38414
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38415
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW09327

<400> 38415
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggagucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38416
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10483

<400> 38416
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38417
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10494

<400> 38417

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuauuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38418
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10505

<400> 38418
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38419
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10516

<400> 38419
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc gagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38420
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10527

<400> 38420
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggauuagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38421
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10538

<400> 38421
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu aaugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38422
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10549

<400> 38422
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaaugaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38423
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10560

<400> 38423
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguauu ugaaaagaau 120

guuacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucuu 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38424
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10571

<400> 38424
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uguauuggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38425
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10582

<400> 38425
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38426
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10593

<400> 38426
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38427
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADW10604

<400> 38427
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38428
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADW10615

<400> 38428

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caacugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuac 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38429
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10626

<400> 38429
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38430
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10721

<400> 38430
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaggacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag aaaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38431
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10743

<400> 38431
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaauacuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaauaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguguaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38432
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10754

<400> 38432
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcucac auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuacagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccguu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugaacaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38433
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADW10765

<400> 38433
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag aaaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38434
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10776

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaacg acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38435
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10787

<400> 38435

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc gagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaguuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38436
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10798

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaagggug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38437
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10809

<400> 38437
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag aaaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38438
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10820

<400> 38438
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38439
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10831

<400> 38439
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38440
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10842

<400> 38440
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucgc cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacauccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38441
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADW10853

<400> 38441
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aacccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38442
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADW10864

<400> 38442
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag aaaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38443
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 38443
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugcuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag aaaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38444
<211> 1698
<212> RNA
<213> Artificial Sequence

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<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW10886

<400> 38444
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38445
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADW10897

<400> 38445
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaucaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugauacga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cccaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaguagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADW23115

<400> 38446

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ggaaauggca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccauauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW54481

<400> 38447
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW54512

<400> 38448
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADW54527

<400> 38449
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa acuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagga ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADW65825

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38451
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38451
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cacagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82155

<400> 38452
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cacagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38453
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82166

<400> 38453

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cacagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82177

<400> 38454
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cacagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38455
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82188

<400> 38455
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82198

<400> 38456
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38457
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82208

<400> 38457
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82218

<400> 38458
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa ugucccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38459
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82228

<400> 38459
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82238

<400> 38460
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82248

<400> 38461
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82258

<400> 38462
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38463
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW82268

<400> 38463
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uccuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau ucaccagauu uuggcgauuu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADW93760

<400> 38464

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cacagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW95319

<400> 38465
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacaccaaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacgcaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADW95332

<400> 38466
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX21078

<400> 38467
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cacagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucaggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX21088

<400> 38468
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cacagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucaggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX21098

<400> 38469
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcagua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uccuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau ucaccagauu uuggcgauuu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX36109

<400> 38470
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96278

<400> 38471

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggagu caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96288

<400> 38472
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa caaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38473
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96298

<400> 38473
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaguaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuac ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96308

<400> 38474
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38475
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96318

<400> 38475
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96328

<400> 38476
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38477
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96347

<400> 38477
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96357

<400> 38478
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaguaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggcuauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96367

<400> 38479
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaguaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38480
<211> 1701
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__ADX96378

<400> 38480
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADX96398

<400> 38481
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADX96408

<400> 38482

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuug 1680

caguguagaa uaugcauuua a 1701

<210> 38484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADX96437

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

cuagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96447

<400> 38485
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugguucucua 1680

caguguagaa uauguauuua a 1701

<210> 38486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96497

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 38487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96507

<400> 38487
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuac ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 38488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADX96517

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuac ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 38489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38489

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuuccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga uguguuccaa ugggucuuug 1680

caguguagaa uaugcauuua a 1701

<210> 38492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38493
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96587

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96597

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38495
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96607

<400> 38495
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaccaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96627

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuac ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugguucucua 1680

caguguagaa uauguauuua a 1701

<210> 38499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96657

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccuaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacgcaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADX96667

<400> 38500

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96677

<400> 38501
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacagua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96687

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagucuac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38503
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<212> RNA
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<220>
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hemagglutinin__InfluenzaA__ADX96697

<400> 38503
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADX96707

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcgaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuac ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38505
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38505
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaaggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa agcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uaaucucccu gggggcaauc aguuucugga ugugcucuac ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96747

<400> 38507

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96757

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagugccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuac ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38509
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96767

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaguaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagucgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuac ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96777

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagugccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38511
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96787

<400> 38511
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cagugcagaa uauguauuua a 1701

<210> 38512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADX96797

<400> 38512
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcuccaa ugggucuuug 1680

caguguagaa uaugcauuua a 1701

<210> 38513
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96807

<400> 38513
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggauca 660

ucaagauuca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96817

<400> 38514
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96837

<400> 38515
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cuuaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuac ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96847

<400> 38516
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96857

<400> 38517
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADX96867

<400> 38518

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuug 1680

caguguagaa uaugcauuua a 1701

<210> 38519
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96877

<400> 38519
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaguaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau cagaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 38520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96897

<400> 38520
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96907

<400> 38521
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacauucugu uaaccuucua gaagacaagc auagcgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgagcaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uggucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96927

<400> 38522
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggacagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38523
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96937

<400> 38523
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96947

<400> 38524
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38525
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96957

<400> 38525

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96967

<400> 38526
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggauca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucag 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADX96977

<400> 38527
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADX96987

<400> 38528
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggaua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38529
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX96997

<400> 38529
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38530
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX97007

<400> 38530
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagaugc accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38531
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX97018

<400> 38531
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX97028

<400> 38532
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa caaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38533
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98640

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagcaac 540

uccuacauua augauaaagg gaaagaaguu cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98650

<400> 38534
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38535
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98665

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaau acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa uggaucucua 1680

caguguagaa uauguauuua a 1701

<210> 38536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADX98675

<400> 38536

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98695

<400> 38537
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98729

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca acuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggagagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98739

<400> 38539
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccugaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaagugaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98748

<400> 38540
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu guggaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98758

<400> 38541
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98767

<400> 38542
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38543
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98777

<400> 38543

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggguucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuauaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98785

<400> 38544
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agguggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98792

<400> 38545
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98806

<400> 38546
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38547
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98818

<400> 38547
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaaau cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98828

<400> 38548
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38549
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98843

<400> 38549
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu guggaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauuaga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98853

<400> 38550
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccauagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggguuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98860

<400> 38551
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuauaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98870

<400> 38552
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98880

<400> 38553
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaagagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuauuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADX98890

<400> 38554

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugaaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaacgaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98900

<400> 38555
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuug uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98910

<400> 38556
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aucucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98920

<400> 38557
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagcc aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98930

<400> 38558
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98940

<400> 38559
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cguacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagggccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98950

<400> 38560
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaggcaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaauuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98960

<400> 38561

augaaggcaa uacuaguagu ucugcuauau acauuuguaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98970

<400> 38562
augaaggcaa uacuaguagu ucugcuauau acguuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaagg ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauacg aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98980

<400> 38563
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaacgggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX98990

<400> 38564
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38565
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADX99000

<400> 38565
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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<210> 38566
<211> 1698
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__ADX99581

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacac uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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<220>
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacac uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

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<210> 38568
<211> 1698
<212> RNA
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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacac uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

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uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

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<210> 38569
<211> 1698
<212> RNA
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uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

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gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

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cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 38570
<211> 1698
<212> RNA
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hemagglutinin__InfluenzaA__ADX99625

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

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<210> 38571
<211> 1698
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__ADX99636

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacac uccguccauu 1020

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auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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<210> 38572
<211> 1698
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADX99647

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

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ugcagaauau gcaucuga 1698

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hemagglutinin__InfluenzaA__ADX99680

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

uccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

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uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaaaucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

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uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

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gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

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aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaagucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

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caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

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cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

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gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

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uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau accuaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

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cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

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gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

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gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

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uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauuuu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

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uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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hemagglutinin__InfluenzaA__ADX99920

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauuuu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

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uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

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gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu ggaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcaggaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauagaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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<210> 38583
<211> 1698
<212> RNA

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaacaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

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gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

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uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca acaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

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gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

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gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccaaaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu ggaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

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gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

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auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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<212> RNA
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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

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gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

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uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

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uacagaaauu ugcuauggcu gacggagaag aagggcucau acccaaagcu ggaaaauucu 540

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<210> 38588
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<212> RNA
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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

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gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 38589
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY04727

<400> 38589
augaaagcaa aacuacuggu ccuguuaugu acauuuacag cuacauacgc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aaucccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccgugaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaaa aaugguuugu acccaaaccu gagcaugucc 540

uauguaaaca acaaagaaaa agaaguccuu gugcuauggg guguucauca cccaccuaac 600

auagggaacc aaagggcccu cuaccauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag uuacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa uuugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggaguaaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 38590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADY11836

<400> 38590

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY17654

<400> 38591
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY17665

<400> 38592
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY17676

<400> 38593
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY17687

<400> 38594
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gugcugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY17698

<400> 38595
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY38719

<400> 38596
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucacuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacga augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY38750

<400> 38597

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38598
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADY38760

<400> 38598
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauaa augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38599
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ04607

<400> 38599
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38600
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ05834

<400> 38600
augaaaguaa aacuacuggu ccuguuaugc acauuugcag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga auagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccguu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaguugga aagaaggaug 1260

gaaaacuuga acaaaaaggu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38601
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ05845

<400> 38601
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ05855

<400> 38602
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caauuacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38603
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ47838

<400> 38603
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuuguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ47858

<400> 38604
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38605
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ53100

<400> 38605
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagacauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaaugauc aaaagacccu cuaccauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccaggg auacgauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ53123

<400> 38606
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ53125

<400> 38607
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccuaaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ADZ53127

<400> 38608

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggguuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38609
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ53131

<400> 38609
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccuaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ53133

<400> 38610
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38611
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ53135

<400> 38611
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccuaaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ADZ53138

<400> 38612
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38613
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38613
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ADZ93496

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38615
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA04365

<400> 38615

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gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagacau agcaacaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccuauu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggguuu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 38616
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEA04376

<400> 38616
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacagagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcaacaagg ccuaaaguga auggacaagg agguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

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acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaagg uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 38617
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA10292

<400> 38617
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuca 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

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aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA10303

<400> 38618
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38619
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA10313

<400> 38619
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38620
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA10323

<400> 38620
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauaa augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38621
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA10339

<400> 38621
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA10349

<400> 38622
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA30293

<400> 38623
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA48989

<400> 38624
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cugugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaagaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38625
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA50985

<400> 38625
auggagaaaa uagugcuucu ucuugcaauu aucaaucuug uuaaaaguga ucagauuugc 60

auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaagcu cugugaucua 180

gacggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucgggaau 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga aaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

cugagcagaa ucaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggggu gagcucagca uguccguacc agggaagguc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaagaac gaugcauacc caacaauaaa gauaaguuac 540

aauaauacca accaagaaga ucuuuuggua uuugggggga uucaccaucc aaaugaugcg 600

gcagagcaga caaaacuuua ucaaaaucca accaccuaua uuuccguugg gacaucaaca 660

cuuaaucuga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ccaaaugaug caauaaauuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacgauc 840

augaaaagug aauuggaaua uggcaacugc aacaccaagu gucaaacucc aguaggggcg 900

auaaacucua guaugccauu ccacaacauc cacccucuca ccauagggga augccccaaa 960

uaugugaaau caaacagauu aguucuugcg acugggcuca gaaauagccc ucaaggagaa 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag gcuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagua acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auaaauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uucuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaauc uuuacgauaa aguccgacua cagcuuagag auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ccacagaugu gauaaugaau guauggaaag uguuagaaac 1500

ggaacguaug acuacccuca guauucagaa gaaucaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggagucaau aggaauuuau caaauacugu caauuuauuc aacagcggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuaucuu uauggaugug cuccaaugga 1680

ucauuacaau gcagaauuug cauuuaa 1707

<210> 38626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA72704

<400> 38626
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA72715

<400> 38627
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA72726

<400> 38628
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA72740

<400> 38629
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA72750

<400> 38630
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38631
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA72759

<400> 38631
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA72777

<400> 38632
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38633
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA72787

<400> 38633

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73288

<400> 38634
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38635
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73299

<400> 38635
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEA73310

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38637
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguuacccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38638
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38639
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38640
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73354

<400> 38640
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38641
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73365

<400> 38641
augaagacua ucauugcuuu gagcuacacu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38642
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73376

<400> 38642
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38643
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

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ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

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auuaacagca cggggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<210> 38644
<211> 1701
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

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gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 38649
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

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gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<210> 38650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

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uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 38651

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38652
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38653
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<212> RNA
<213> Artificial Sequence

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA

<213> Artificial Sequence

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38657
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73562

<400> 38657
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38658
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu uacuauggcu gacggagaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaccaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuaa guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38659
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73584

<400> 38659
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

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uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

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cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag aaaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguuaguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

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uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

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cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu accacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

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uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auggcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

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cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

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gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

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gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

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gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

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aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

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caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

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gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauccug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

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<212> RNA
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gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

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auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

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gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

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caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

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gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

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gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

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<212> RNA
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gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

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cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

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gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

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<212> RNA
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uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

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aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEA73672

<400> 38667
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38668
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73683

<400> 38668
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38669
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73694

<400> 38669

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauuggga aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggaguggaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38670
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73705

<400> 38670
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38671
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73716

<400> 38671
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38672
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73727

<400> 38672
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38673
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73738

<400> 38673
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38674
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73749

<400> 38674
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38675
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<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEA73760

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaauaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38676
<211> 1701
<212> RNA
<213> Artificial Sequence

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<400> 38676
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38677
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38678
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38679
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEA73801

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaag aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38680
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73811

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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38681
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEA73821

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauu auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73831

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucca gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38683
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugaaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuguu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38684
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38685
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu gaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugau gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gauugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38686
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38687
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38687

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu agaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu uagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38688
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38689
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38690
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA73911

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcuauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu agaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu uagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<212> RNA
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucggauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggacu 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaacugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuagacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

uguuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaaa uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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<210> 38697
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<212> RNA
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagauu cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

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ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38698
<211> 1701
<212> RNA
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<220>

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaagaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguaucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38699
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA74021

<400> 38699
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguaucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38700
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA74031

<400> 38700
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacauucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuuaggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu cuuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cacaugcugg agcaaaaagc 480

uucuacaaca auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacgcaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38701
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA74035

<400> 38701
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacauucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuuaggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cacaugcugg agcaaaaagc 480

uucuacaaca auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacgcaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEA77299

<400> 38702
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38703
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB21316

<400> 38703
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38704
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB21326

<400> 38704
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaccuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38705
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB21338

<400> 38705

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB21348

<400> 38706
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38707
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB40206

<400> 38707
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB66895

<400> 38708
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38709
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71102

<400> 38709
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auuuguguug gguacuuaag cacaaacuca ucagaaaggg uugacacauu gcuagagaac 120

aauguccccgg uuacaagcuc uguugauuug guugagacca accacacagg aacauauugu 180

ucuuugggug gaauuagccc agugcacuug ggggacugua gcuucgaggg cuggauugua 240

gggaacccug ccugugccag caaccugggg auuagagaau ggucauauuu gauugaagau 300

ccuucugcuc cucauggauu guguuaccca ggagaguuag acaacaaugg agaauugagg 360

cacuuguuca gugggaucag aucuuucagu agaacagagu ugaucgcacc uaccucuugg 420

ggggaaguga augauggggu aacggcugcc ugucaagaca aaggagcuag cagcuuuuac 480

cggaacuugg uaugguuugu ggagagagga aauaaauauc cugugauccg caggaccuac 540

aacaacacca cuggcagaga uguuuugguu auaugggggua uacaucaccc ugucuccaca 600

gaugaagcga ggaaacugua ugccaaagac aauccauaca cauugguauc uaccaguuca 660

uggagcagga aauacaaccu agaaacugga accagaccug gauacaaugg ccaaaagagu 720

uggacgaaga uuuacuggua ucugaugcac cccggggauu caaucaguuu cgaaagcaau 780

gggggauuac uggcucccaa auaugguuac auuauugagg aauauggaaa agggcgaauu 840

uuccaaagcc gcauucgcau ugcuaaaugc aauacuaagu gccaaacauc gguuggugga 900

auaaauacua acaaaacauu ucaaaacaua gagagaaaug cacuuggggga uugcccgaaa 960

uacauaaagu cuggacagcu caaguuggcc acuggacuua ggaauguacc ugccauauca 1020

aacagaggau uguuuggggc uauugcaggc uucauagaag gugguuggcc aggauuaaua 1080

aaugguuggu auggauucca acaucagaau gaacaaggaa ugggcauggc ugcagacaaa 1140

gagucaacac aaaaggcuau ugaucaaaua acaacuaaga uaaacaauau aauagaaaaa 1200

augaauggga auuaugacuc aauacgaggu gaauucaguc agguggaaca aagaauaaau 1260

augcuugcag acagaauaga ugaugcugua acugauguau ggucauacaa ugcaaagcuu 1320

cuuguuuuau uagagaacga caagacucua gacaugcaug acgccaacgu caggaaccug 1380

caugaucaag uccguagagu guugaggacc aaugcaauug augagggaaa uggauguuuu 1440

gaacuccucc auaaaugcaa ugacucuugc auggagacaa uaagaaaugg aacguacaac 1500

cauauagagu augaagagga aucaaaguua aaaagacagg aaauagaagg uauaaagcug 1560

aagucagacg acaaugucua caaagcauua ucgauuuaca gcugcaucgc aagcaguauu 1620

guauugguag gacucauacu ugcauucauc auguggcau gcaguagugg caauugccga 1680

uucaauauuu guauauaa 1698

<210> 38710
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71896

<400> 38710
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaagg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38711
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71916

<400> 38711
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38712
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71925

<400> 38712
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38713
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71936

<400> 38713
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuucug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71947

<400> 38714
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38715
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71958

<400> 38715
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEB71969

<400> 38716

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71980

<400> 38717
augaagacua ucauugcuuu gagcugcauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuaccga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uuuaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguagag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38718
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEB71992

<400> 38718
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38719
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC13313

<400> 38719
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38720
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC46553

<400> 38720
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcgggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38721
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC46555

<400> 38721
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuauauua augauaaagg gaaaaaagua cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugagggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC46557

<400> 38722
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcgggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38723
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53259

<400> 38723

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53269

<400> 38724
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

cuauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauacg aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38725
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53279

<400> 38725
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53289

<400> 38726
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38727
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53299

<400> 38727
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53327

<400> 38728
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38729
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53347

<400> 38729
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53404

<400> 38730
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38731
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEC53414

<400> 38731
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38732
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEE27177

<400> 38732
augaagacaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaag gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38733
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEE27187

<400> 38733
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaaaauaca gcaagaaguu caagccggaa auagcuauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEE27207

<400> 38734

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuuuaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaagugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38735
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64752

<400> 38735
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcuaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaac 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaagaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuagacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagacagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguauugg uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 38736
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64762

<400> 38736
augaaggcaa gacuacuggu ccuguuaugu gcacuugcag cuacagaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacc gacacuguug acacacuacu cgagaagaau 120

gugacaguga cacauucugu uaaccugcuc gaagacagcc acaacgggaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacucacu gcuuccagcg agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggagcaug uuauccagga gauuucaucg acuaugagga acugagggag 360

caauugagca caguaucauc auuagaaaga uucgaaauau uucccaagga aaguucaugg 420

cccaaccaca acacacucaa aggaguaaca guaucaugcu cccauggggg aaaaagcagu 480

uuuuacagaa auuugcuaug gcugacgaaa acgggggacu cauacccaaa gcugaacaau 540

uccuauguga acaauaaagg gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

agcaguaaug agcaacagag ucucuaucau aauguaaaug cuuaugucuc uguagugucu 660

ucaaauuaua acaggagauu caccccggaa auagcugcaa gacccaaagu aagagaucaa 720

ccugggagga ugaacuauua cuggaccuug cuagaacccg gagacacaau auuauuugag 780

gcaacuggua aucuaauagc accaugguau gcuuucgcac ugaguagagg guuuggguсc 840

ggcaucauca ccucaaacgc gucaaugcau gaguguaaca cgaaguguca aacaccccag 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauaug ucaggaguac caaauugagg augguuacag gacuaagaaa caucccaucc 1020

auucaaucca gaggucuauu uggagccauu gcugguuuua uugagggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcagcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaacuu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuag uucuacugga aaaugaaagg acuuuggauu uccaugacuu aaaugugaaa 1380

aaucuguacg agaaaguaaa aagccaauua aagaauaaug ccaaagaaau cggaaauggg 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaaguguaag agaugggacu 1500

uaugauuauc caaaauauuc agaagaauca aaguugaaca gggaaaagau agauggagug 1560

aaauuggaau caauggggu guaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucua a 1701

<210> 38737
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64784

<400> 38737
augaaggcaa uacuaguagu ucugcuguau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64834

<400> 38738
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauua 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38739
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64845

<400> 38739
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64856

<400> 38740
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuucg uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gaggucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuga aauacaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca gacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaguaa ugaggucaga ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uagagucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38741
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64867

<400> 38741

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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu uuaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64878

<400> 38742
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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aaugugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcau aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38743
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64889

<400> 38743
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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu auuugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu uuaaaauacg aaguggggaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga uaugggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64911

<400> 38744
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacuuug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggaa 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38745
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64922

<400> 38745
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucua gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacuuug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64933

<400> 38746
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa cagguggaau augcgauagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38747
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64944

<400> 38747
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auauuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accguuucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64955

<400> 38748
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ggaaaugaca acagcacggc aacguugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga guugguacag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38749
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64966

<400> 38749
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga guugguacag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucaga caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38750
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64977

<400> 38750
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccuaauaucg gaucuagacc caggguaagg 720

gaugucucua gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu gacaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacuuug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38751
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG64988

<400> 38751
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacaug ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuuuu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEG64999

<400> 38752

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccauuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65010

<400> 38753
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaauuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag cuucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaga uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca ucugcauuug a 1701

<210> 38754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEG65021

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccauuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacac ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugauc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38755
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38755
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauaaguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38756
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaagcugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugaacuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38757
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38757
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acauuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEG65065

<400> 38758
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugguagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg guccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65076

<400> 38759

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaaugucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65087

<400> 38760
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacga acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucagaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65098

<400> 38761
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagauccaau 480

aacaguuucu uuaguagacu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaaucu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65109

<400> 38762
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

aaacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaau caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38763
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65120

<400> 38763
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucgc auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65131

<400> 38764
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagauccaau 480

aacaguuucu uuaguagacu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38765
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65142

<400> 38765
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuacu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcucug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggccc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65153

<400> 38766
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggccc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65164

<400> 38767
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu gauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggccc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggaguuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65175

<400> 38768
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcgaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcgaca uuugcauuug a 1701

<210> 38769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65186

<400> 38769
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa cgaaaaauau gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccaa gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggagcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEG65197

<400> 38770

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccccaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcuccg cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag cuucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauaauuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga uacacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaacagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuagagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38771
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65208

<400> 38771
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65219

<400> 38772
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 38773
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65230

<400> 38773
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua ugguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65252

<400> 38774
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38775
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65263

<400> 38775
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38776
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65274

<400> 38776
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38777
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<220>
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<400> 38777

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38778
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65296

<400> 38778
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38779
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 38779
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 38780
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaggca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38781
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEG65329

<400> 38781
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua ugguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65340

<400> 38782
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcgaaag gagaucuaac 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagagucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga aaucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38783
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65351

<400> 38783
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38784
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65362

<400> 38784
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua ugguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65373

<400> 38785
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcgaaag gagaucuaac 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagagucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga aaucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65384

<400> 38786
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38787
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65406

<400> 38787
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEG65417

<400> 38788

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38789
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65428

<400> 38789
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65439

<400> 38790
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggauaac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggagu aggacaagca 1140

gcagaucuca aaagcacgca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaga ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38791
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65450

<400> 38791
augaagacua ucauugcuug gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38792
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65461

<400> 38792
augaagacua ucauugcuug gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38793
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65472

<400> 38793
augaagacua ucauugcuug gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaauaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65483

<400> 38794
augaagacua ucauugcuug gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65494

<400> 38795

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38796
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65505

<400> 38796
augaagacua ucauugcuug gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65516

<400> 38797
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65527

<400> 38798
augaagacua ucauugcuug gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38799
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65538

<400> 38799
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38800
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65560

<400> 38800
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38801
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<212> RNA
<213> Artificial Sequence

<220>
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<400> 38801
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ggaaaugaca acagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38802
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ggaaaugaca acagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38803
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 38803
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ggaaaugaca acagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38804
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augccacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaaa aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38805
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEG65626

<400> 38805
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa uaaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

aguucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEG65637

<400> 38806

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaucuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa uaaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaga 840

aguucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38807
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65648

<400> 38807
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcgaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguaucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gccuuaaaua accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcgaca uuugcauuug a 1701

<210> 38808
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65659

<400> 38808
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug cauaacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38809
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65670

<400> 38809
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua ugguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 38810
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38811
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65692

<400> 38811
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcgaaag gagaucuaac 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagagucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga aaucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38812
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65703

<400> 38812
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38813
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65747

<400> 38813
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc auacaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38814
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65758

<400> 38814
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuccgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38815
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65769

<400> 38815
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuuugcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga cgugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaguaucg gaucuagacc caggauaagg 720

gauguccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguggcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugaguuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 38816
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65780

<400> 38816
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgccca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugacaaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccgca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38817
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG65813

<400> 38817
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa cagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38818
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG79801

<400> 38818
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguaucua a 1701

<210> 38819
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG79807

<400> 38819
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag uaucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gacugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38820
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEG79835

<400> 38820
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag uaucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38821
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59363

<400> 38821
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38822
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59367

<400> 38822
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauaccccaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cugggcacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38823
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59369

<400> 38823
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38824
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEH59371

<400> 38824

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38825
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59373

<400> 38825
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagagg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucgccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaagaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38826
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59375

<400> 38826
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38827
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59379

<400> 38827
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38828
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59381

<400> 38828
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38829
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59383

<400> 38829
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59385

<400> 38830
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauauuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38831
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59387

<400> 38831

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59393

<400> 38832
augaaggcaa uacuaguagu uauacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccgucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38833
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59397

<400> 38833
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccagucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau ugaaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38834
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59399

<400> 38834
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacaaua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac caaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38835
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59403

<400> 38835
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagcgccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcga uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucaguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEH59407

<400> 38836
augaaagcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38837
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59409

<400> 38837
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu ugccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59411

<400> 38838
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggacagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguug aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38839
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59413

<400> 38839
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga acuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcugu ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaauu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59585

<400> 38840
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gacuugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacaguagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38841
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59587

<400> 38841
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccguuu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacaguagua gguaaagagu ucaacccccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEH59589

<400> 38842

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38843
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59591

<400> 38843
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacaguagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59593

<400> 38844
augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag uaucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38845
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59595

<400> 38845
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59597

<400> 38846
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacuau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg cuaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38847
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59599

<400> 38847
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucugucauu 1200

gaaaagauga auacacaguu cacaguagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acauuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59601

<400> 38848
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aacuguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gacugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacaguagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 38849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59604

<400> 38849

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59614

<400> 38850
augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH59624

<400> 38851
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag uuucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaau acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38852
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH77259

<400> 38852
augaaaguaa aacuacuggu ccuguuaugc acauucacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg ucgccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaaugu uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccgaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guuuuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38853
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEH77270

<400> 38853
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEH77279

<400> 38854
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa cagguggaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagauccaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uaggguaagg 720

gaugucucua gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacuuug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu ccgagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38855
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI29215

<400> 38855
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI29225

<400> 38856
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI29591

<400> 38857
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca agaccuucca 60

ggaaaugaca acagcacagc aacucuuugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucuaucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu acaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcacuugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuua g 1701

<210> 38858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54347

<400> 38858
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucua gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacuuug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggaau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54358

<400> 38859
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auauuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54369

<400> 38860
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54380

<400> 38861
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54391

<400> 38862
augaagacua ucauugcuug gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacau acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54402

<400> 38863
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcuacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54413

<400> 38864
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaac 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54424

<400> 38865
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga cgugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaguaucg gaucuagacc caggauaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguggcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugaguuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 38866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 38866
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54457

<400> 38867

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54468

<400> 38868
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug ccugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38869
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54479

<400> 38869
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54490

<400> 38870
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38871
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI54501

<400> 38871
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugaaaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI59979

<400> 38872
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcauc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaauagauug 1200

aucgagaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugua uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38873
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI59990

<400> 38873
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugauc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaagua gccaaaagac ccaaaguaag ggaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagacgguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aguauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 38874
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI60001

<400> 38874
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugccua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga gagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38875
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI60012

<400> 38875
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaguucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aacaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aaaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI60023

<400> 38876
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38877
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI60034

<400> 38877
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38878
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI60045

<400> 38878
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcauc augcaguacc aaacggaacg 120

auagugaaaa caaucaugaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gauauagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38879
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI60086

<400> 38879
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38880
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI60109

<400> 38880
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggugacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauaa ugugccagau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucaggaugga ucaagcuaug cuugcaaaag gagaucuaau 480

aaaaguuuuu uuaguagauu gaauugguug caucaauuaa auuacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaacuuu gacaaauugu acauuugggg gguucaccac 600

ccagguacag acagugacca aaucagucua uaugcucaag caucagggag ggucacaguc 660

ucuaccaaaa ggagccaaca aacuguaauc ccgaauaucg gauauagacc cuggguaagg 720

ggugucucua gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacucuug 780

auuaacagca caggaaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggccc 960

uguccccagau auguuaaaca aaacacuuug aaauuagcaa cagggaugcg gaaugugcca 1020

gagaagcaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa uggcugggaa 1080

ggaaugaagg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagauauua aaagcacuca agcagcaauc aaccaaauca acggaaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auaugucgag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagagaug 1380

aacaaacugu uugaaagaac aaagaaacaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uuggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagacgaa gcauugaaca accgguucca uaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cacaucaugc 1620

uuucugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 38881
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86734

<400> 38881
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauagu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg ggcaaaaagc 480

uucuacagaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguug aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38882
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86764

<400> 38882
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38883
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86774

<400> 38883
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38884
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86784

<400> 38884
augaagguaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38885
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86794

<400> 38885

augaagacaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86804

<400> 38886
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucuaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaaugug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagucu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucagcugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86814

<400> 38887
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86824

<400> 38888
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa acuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagga ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagagaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38889
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86834

<400> 38889
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaggaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86854

<400> 38890
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86864

<400> 38891
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacaccuaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38892
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86874

<400> 38892
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38893
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86894

<400> 38893
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86904

<400> 38894
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuuaggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auccaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86914

<400> 38895
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaag gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEI86924

<400> 38896

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaauuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86934

<400> 38897
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86944

<400> 38898
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcuacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38899
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86964

<400> 38899
augaaggcaa uacuaguagu ucuacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38900
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86974

<400> 38900
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86984

<400> 38901
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac gccaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau cggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuguugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38902
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI86994

<400> 38902
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38903
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87004

<400> 38903

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaagg ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38904
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87014

<400> 38904
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc aggggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87034

<400> 38905
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaccaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcaaua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87044

<400> 38906
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuauccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38907
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87054

<400> 38907
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggu 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38908
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87064

<400> 38908
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uguauagguu aucaugcgaa caauucaaca gacacuguag acaccguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38909
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87074

<400> 38909
augaaggcaa cacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87094

<400> 38910
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggaua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38911
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI87104

<400> 38911
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggaua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 38912
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI91963

<400> 38912
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucaa aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggGc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38913
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI91977

<400> 38913
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI91978

<400> 38914
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg ggcucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38915
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI91998

<400> 38915
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38916
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI91999

<400> 38916
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucucaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38917
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEI92018

<400> 38917
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38918
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10400

<400> 38918
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuuguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38919
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10410

<400> 38919
augaagacaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuauag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

uccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38920
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10420

<400> 38920
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaggc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcuacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38921
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10430

<400> 38921

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10440

<400> 38922
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaau ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10450

<400> 38923
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38924
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10480

<400> 38924
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag agugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38925
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10490

<400> 38925
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaagaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaaccgu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10500

<400> 38926
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaaggcaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38927
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10510

<400> 38927
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10520

<400> 38928
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaauuaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ucaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38929
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10530

<400> 38929
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10540

<400> 38930
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38931
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10550

<400> 38931
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEJ10570

<400> 38932

augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38933
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ10580

<400> 38933
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ36302

<400> 38934
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucauaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag gcucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaac uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38935
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ36312

<400> 38935
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auauacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37853

<400> 38936
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggg 240

aauccagagu gugaaucacu cucuacagca agcucauggu ccuacauugu ggaagcaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38937
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37863

<400> 38937
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

ccuaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaacu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gugguguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac cuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38938
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37873

<400> 38938
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38939
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37883

<400> 38939

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37893

<400> 38940
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu ggaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauaa accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38941
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37903

<400> 38941
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37923

<400> 38942
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uagaaagaau ggcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38943
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37943

<400> 38943
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37953

<400> 38944
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucugaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38945
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37963

<400> 38945
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuacaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37973

<400> 38946
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aauuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEJ37983

<400> 38947
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21369

<400> 38948
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38949
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21380

<400> 38949
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 38950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21396

<400> 38950
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgaaa uggaaagaaa aucuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaacua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38951
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21406

<400> 38951
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu caaugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38952
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21416

<400> 38952
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38953
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21426

<400> 38953
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaagaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38954
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21436

<400> 38954
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug ggugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38955
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21456

<400> 38955
augaaggcaa uacugguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gugguguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaaugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21466

<400> 38956
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcugguucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38957
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21476

<400> 38957

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK21486

<400> 38958
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 38959
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28774

<400> 38959
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucccu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28785

<400> 38960
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaccuuccu 60

ggaaaugaca acagcgcggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaguu gagguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcauac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38961
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28796

<400> 38961
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugacaaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaauuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gggaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca agcugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aacaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38962
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28807

<400> 38962
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac ggcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38963
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28818

<400> 38963
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacaaca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag agggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38964
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28828

<400> 38964
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg gaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aaccguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ucugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38965
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28839

<400> 38965
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38966
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28850

<400> 38966
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaacgaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugugauc ccgaauaucg gaucuagacu cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu aaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38967
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28861

<400> 38967
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugaaggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca caucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38968
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEK28872

<400> 38968

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugauca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38969
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28883

<400> 38969
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuagu 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38970
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28894

<400> 38970
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaacgaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugugauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu aaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38971
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28905

<400> 38971
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38972
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28916

<400> 38972
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaguaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38973
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEK28927

<400> 38973
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38974
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28949

<400> 38974
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguugucuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38975
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28960

<400> 38975

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aguucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38976
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28971

<400> 38976
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc cagaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccuu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38977
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28982

<400> 38977
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ggaaauuaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucuaug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK28993

<400> 38978
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ggaaauuaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucuaug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38979
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29004

<400> 38979
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacuuug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38980
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29026

<400> 38980
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguucuucaa caggugaaau augcgacagu ccucaucaga uccuugaugg gaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaga uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaauuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cucagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa ggagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaaugca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguga acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38981
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29048

<400> 38981
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aaugguagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaguuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38982
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29070

<400> 38982
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuua 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aacgccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38983
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29081

<400> 38983
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuua 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauuc aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aacgccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38984
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29092

<400> 38984
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaauauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38985
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29125

<400> 38985
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38986
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEK29136

<400> 38986

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38987
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29169

<400> 38987
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38988
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29180

<400> 38988
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38989
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29191

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38990
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 38990
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38991
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29213

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38992
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29224

<400> 38992
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38993
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29235

<400> 38993

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38994
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK29268

<400> 38994
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuacaaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38995
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK59838

<400> 38995
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

gauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca aaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccggga auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaauu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau gugcacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua caaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcca aagaaauagg aaaugggugc 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 38996
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98378

<400> 38996
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auacguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38997
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98380

<400> 38997
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38998
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98382

<400> 38998
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aauuggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 38999
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98386

<400> 38999
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagaac cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39000
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98388

<400> 39000
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39001
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98390

<400> 39001
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca agaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugcaug caucacucca 900

aauggaagca uucccaauga caaaacauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucgau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcucu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39002
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98392

<400> 39002
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgga ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacca ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacu cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauaac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu aaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39003
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98394

<400> 39003
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacu cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39004
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEK98396

<400> 39004

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuuguauaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucucccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugua uaggaucaau cagaaauggg 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga ucuccuuugc cauaucaugu 1620

uuuuugcuuu guauugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39005
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98398

<400> 39005
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauauacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucauaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39006
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98400

<400> 39006
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacgggacg 120

auagugaaga caaucacgaa cgaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacca ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca guucugaaug caucacucca 900

aauggaagca ucccuaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aaucgaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca agaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39007
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98402

<400> 39007
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39008
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98404

<400> 39008
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacgggacg 120

auagugaaaa caaucacgaa cgaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augugacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga uguuccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaaugcg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uccccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaauagguug 1200

auugggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auacguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39009
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEK98406

<400> 39009
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacgggacg 120

auagugaaaa caaucacgaa cgaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa gauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauua gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uccccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc gucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39010
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL11687

<400> 39010
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucagacua uaugcucaag cuucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauauagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39011
<211> 1692
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL31632

<400> 39011

auggagaaaa uagugcuucu ucuugcaaua gucagucuug uuaaaaguga ucagauuugc 60

auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucuaau uuuaagagau uguagcguag ccggauggcu ccucgggaac 240

ccaaugugcg acgaauuccu caaugugccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caggagugag cucaguaugu ccauaccagg gaagauccuc cuuuuuuaga 480

aauguggguau ggcuuaccaa aaaggacaau gcauacccaa caauaaagag aaguuacaau 540

aauaccaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcggca 600

gagcagacaa ggcuuuauca aaacccaacu accuauauuu ccguugggac aucaacacua 660

aaccagagau ugguaccaaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugagu uggaauaugg uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcuaagaa auagcccuca aggagagacg 1020

cgaggacuau uuggagcuau agcagguuuu auagagggag gauggcaggg aaugguagau 1080

gguugguaug gguaccacca uagcaacgag caggggagug gguacgcugc agacaaagaa 1140

uccacucaaa aggcaauaga uggagucacc aauaagguca acucaaucau ugacaaaaug 1200

aacacucagu uugaggcugu uggaagggaa uuuaauaacu uagaaaggag aauagaaaau 1260

uuaaacaaga agauggaaga cggauuccua gaugucugga cuuauaaugc ugaacuucug 1320

guucucaugg aaaaugagag aacucuagac uuucaugacu caaaugucaa gaaccuuuac 1380

gacaaggucc ggcuacagcu uagggauaau gcaaaggagc uugguaacgg uuguuucgag 1440

uucuaucaca gaugugauaa ugaauguaug gaaaguguaa gaaacggaac guaugacuac 1500

ccgcaguauu cagaagaagc aagauuaaaa agagaggaaa uaaguggagu aaaauuggag 1560

ucaauaggaa cuuaccaaau acugucaauu uauucaacag uggcgagcuc ccuagcacug 1620

gcaaucaugg uggcuggucu auuuuuaugg augugcucca auggaucguu acaaugcaga 1680

auuugcauuu aa 1692

<210> 39012
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89297

<400> 39012
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39013
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89307

<400> 39013
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39014
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89317

<400> 39014
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39015
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89327

<400> 39015
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39016
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89337

<400> 39016
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39017
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89347

<400> 39017
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39018
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89357

<400> 39018
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39019
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89367

<400> 39019
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39020
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89391

<400> 39020
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39021
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89401

<400> 39021
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39022
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEL89411

<400> 39022

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39023
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89421

<400> 39023
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39024
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89441

<400> 39024
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39025
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89451

<400> 39025
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39026
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89461

<400> 39026
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39027
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89471

<400> 39027
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39028
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89481

<400> 39028
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39029
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89491

<400> 39029

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39030
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89501

<400> 39030
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augaugaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39031
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89511

<400> 39031
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39032
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89521

<400> 39032
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuauccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39033
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89531

<400> 39033
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugccaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gcugguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39034
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89541

<400> 39034
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39035
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89551

<400> 39035
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39036
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89561

<400> 39036
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac gccaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau cggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuguugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacagagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39037
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89571

<400> 39037
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39038
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89581

<400> 39038
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39039
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89591

<400> 39039
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39040
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEL89601

<400> 39040

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaggugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39041
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89611

<400> 39041
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39042
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89621

<400> 39042
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39043
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89631

<400> 39043
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39044
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89641

<400> 39044
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggagcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39045
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89651

<400> 39045
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauuug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39046
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89661

<400> 39046
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39047
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89671

<400> 39047

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag agugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39048
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89691

<400> 39048
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39049
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89701

<400> 39049
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaaa ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39050
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89711

<400> 39050
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaaa ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39051
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<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEL89721

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39052
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89741

<400> 39052
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guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39053
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89751

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39054
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89761

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39055
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89771

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39056
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89781

<400> 39056
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39057
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89791

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39058
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89801

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuguu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugauacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39059
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89812

<400> 39059
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

gguguuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39060
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89832

<400> 39060
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39061
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89842

<400> 39061
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga guuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucg 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39062
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL89852

<400> 39062
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39063
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL93568

<400> 39063
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39064
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL93578

<400> 39064
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguucg 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39065
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL93598

<400> 39065

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga guacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39066
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL93618

<400> 39066
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39067
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL93628

<400> 39067
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39068
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL93638

<400> 39068
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 39069
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL94870

<400> 39069
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

aaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL95426

<400> 39070
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39071
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL97631

<400> 39071
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaccacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL99664

<400> 39072
augaaagcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacauucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga acuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39073
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEL99674

<400> 39073
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugccg accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aauauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauc gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39074
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM53455

<400> 39074
auggccauca uuuaucucau ucuccuguuc acagcaguga gaggggacca gauaugcauu 60

ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaauccccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagacau agcaacaagg ccuaaaguga auggacuagg agguagaaug 720

gaauucucuu ggacccuauu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugggaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcgga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguuu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 39075
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM53468

<400> 39075
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ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccauaacg gaaagcuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggauugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agauacaguu uguguuaucc aggcagcuuc aaugacuaug aagaauugaa acaucuccuc 360

agcagcguaa aacacuucga gaaaguaagg auucugccca aagauggaug gacacaacau 420

acaacaucug gagguucaaa ggccugcgca gugucaggua aaucaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaccaaau uauccgguug ccaaaagauc guacaacaau 540

acgagcggag agcaaaugcu aauaauuugg ggagugcacc auccuaaaga ugaggcagaa 600

caaagagcau uguaccagaa agugggaacc uauguuuccg caagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcagcaagg ccugaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccuauu ggaugugugg gacaccauaa auuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg aaucaugaag 840

acagaaggaa cacuuggaaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaug uuccucagau ugaaucaaga 1020

ggauuguuug gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugacag aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acucaauuug aagcuguugg gaaagaauuc aguaacuuag agaaaagacu ggaaaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ccuguauaau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugacgauga augcaugagu agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaagaga aaugaaauca aagggguaaa auugagcagc 1560

augggguuu accaaauucu ugccauuuau gcuacaguug cagguucucu gucacuggca 1620

aucaugauag cugggaucuc uuuauggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 39076
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEM60037

<400> 39076

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaaccugggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uuugcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 39077
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM60058

<400> 39077
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uguauaggcu accaugccaa caacucgacu gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggaaaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaucaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcaguuuu 480

uacagaaauu uguuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agacguccuu guacuguggg guguucauca cccgccuaac 600

auaggagacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacugg guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaauuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguuccuug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

ugucgaauau gcaucuaa 1698

<210> 39078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM60069

<400> 39078
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccau 600

ccgagcacag acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

uguccccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg aucuuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39079
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92308

<400> 39079
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaagaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacugaaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92318

<400> 39080
augaaggcaa uacuaguagu ucugcuauau acauuugcga ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39081
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92328

<400> 39081
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92348

<400> 39082
augaaggcaa uacuaguagu ucugcuauau acauuugcga ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaacg ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39083
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92358

<400> 39083

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaaau gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92368

<400> 39084
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39085
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92378

<400> 39085
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaacu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92407

<400> 39086
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ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auucgaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uugaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugcga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac ucacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuau gggaucucua 1680

caguguagaa uauguauuua a 1701

<210> 39087
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92417

<400> 39087
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92428

<400> 39088
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggguucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39089
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92438

<400> 39089
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagauaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92448

<400> 39090
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39091
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92458

<400> 39091
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92468

<400> 39092
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaaggaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caauuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugcuauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39093
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92478

<400> 39093
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caauuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugcuauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEM92498

<400> 39094

augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auucgaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac caaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39095
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92518

<400> 39095
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaag gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa cucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaggugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92528

<400> 39096
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagcgu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39097
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92548

<400> 39097
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaacugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39098
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92558

<400> 39098
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguagca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39099
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92568

<400> 39099
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguagca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39100
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92578

<400> 39100
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucaa aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39101
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92608

<400> 39101

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92618

<400> 39102
augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auucgaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa acaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaggaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac caaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39103
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92638

<400> 39103
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acacgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggucuauu uggggccauu gcugguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga gaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM92648

<400> 39104
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acacgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggucuauu uggggccauu gcugguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga gaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39105
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM98407

<400> 39105
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM98418

<400> 39106
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag aagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39107
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEM98429

<400> 39107
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55398

<400> 39108
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggucacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39109
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55408

<400> 39109
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55418

<400> 39110
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39111
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55463

<400> 39111
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEN55473

<400> 39112

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag acugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39113
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55483

<400> 39113
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39114
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55493

<400> 39114
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39115
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55503

<400> 39115
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39116
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55513

<400> 39116
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaaa ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39117
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN55523

<400> 39117
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39118
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68904

<400> 39118
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39119
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68905

<400> 39119

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39120
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68906

<400> 39120
augaaggcaa uacuaguagu ucugcuauau acauuugcaa cagcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39121
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68907

<400> 39121
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccgucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39122
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68908

<400> 39122
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39123
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68909

<400> 39123
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaaguac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68910

<400> 39124
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaagguac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39125
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68911

<400> 39125
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucuuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68912

<400> 39126
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39127
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68913

<400> 39127
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu ggaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39128
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68914

<400> 39128
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu ggaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39129
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68915

<400> 39129
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc cuuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39130
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEN68916

<400> 39130

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39131
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68917

<400> 39131
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cggucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacgaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39132
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68918

<400> 39132
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaga auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucuauaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39133
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68919

<400> 39133
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39134
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68920

<400> 39134
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39135
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68921

<400> 39135
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cuaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39136
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68922

<400> 39136
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cuaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39137
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEN68923

<400> 39137

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cuaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39138
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEN68924

<400> 39138
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cuaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39139
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68925

<400> 39139
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguggagaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cuaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggugg 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39140
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cgccacagca agcucauggu ccuacauagu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguug aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39141
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68927

<400> 39141
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39142
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68928

<400> 39142
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucgugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39143
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68929

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucugucauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39144
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68930

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39145
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68931

<400> 39145
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucguggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39146
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN68932

<400> 39146
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39147
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN69426

<400> 39147
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEN69475

<400> 39148

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39149
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEN69481

<400> 39149
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01032

<400> 39150
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuuggau aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39151
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01033

<400> 39151
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01034

<400> 39152
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39153
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01035

<400> 39153
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39154
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01036

<400> 39154
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39155
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01037

<400> 39155

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39156
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01038

<400> 39156
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39157
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01039

<400> 39157
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01040

<400> 39158
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaaaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39159
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01041

<400> 39159
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39160
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01042

<400> 39160
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39161
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01043

<400> 39161
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaaaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacacc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagca 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01044

<400> 39162
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39163
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01045

<400> 39163
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aaucuagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc ggaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39164
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01046

<400> 39164
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39165
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01047

<400> 39165
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39166
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01048

<400> 39166

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguaaaa uauguauuua a 1701

<210> 39167
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01049

<400> 39167
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39168
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01050

<400> 39168
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39169
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01051

<400> 39169
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39170
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01052

<400> 39170
augaaggcaa uaauaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugagaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39171
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01053

<400> 39171
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagca 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01054

<400> 39172
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39173
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01055

<400> 39173

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacaaca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01056

<400> 39174
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39175
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01057

<400> 39175
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39176
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01058

<400> 39176
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39177
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01059

<400> 39177
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39178
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01060

<400> 39178
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39179
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01061

<400> 39179
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39180
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01062

<400> 39180
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39181
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01063

<400> 39181
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39182
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01064

<400> 39182
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39183
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01065

<400> 39183
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39184
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01066

<400> 39184

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ucauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39185
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01067

<400> 39185
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auggcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39186
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01068

<400> 39186
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39187
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01069

<400> 39187
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39188
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01070

<400> 39188
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39189
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01071

<400> 39189
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39190
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01073

<400> 39190
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39191
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01074

<400> 39191

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39192
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01075

<400> 39192
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39193
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01076

<400> 39193
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39194
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01077

<400> 39194
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaaugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39195
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01078

<400> 39195
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39196
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01079

<400> 39196
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39197
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01080

<400> 39197
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39198
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01081

<400> 39198
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39199
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01082

<400> 39199
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39200
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01083

<400> 39200
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39201
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01084

<400> 39201
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39202
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01085

<400> 39202

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39203
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01086

<400> 39203
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc ugacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39204
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01087

<400> 39204
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39205
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01088

<400> 39205
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39206
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01089

<400> 39206
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39207
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01090

<400> 39207
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39208
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01091

<400> 39208
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39209
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01092

<400> 39209

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39210
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01093

<400> 39210
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39211
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01094

<400> 39211
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39212
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01095

<400> 39212
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39213
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01096

<400> 39213
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39214
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01097

<400> 39214
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39215
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01098

<400> 39215
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39216
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01099

<400> 39216
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39217
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01100

<400> 39217
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39218
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01101

<400> 39218
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39219
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01102

<400> 39219
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauuaga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39220
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01103

<400> 39220

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauaa uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39221
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01104

<400> 39221
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39222
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01105

<400> 39222
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgagcaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39223
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01106

<400> 39223
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39224
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01107

<400> 39224
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39225
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01108

<400> 39225
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39226
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01109

<400> 39226
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39227
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01110

<400> 39227

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39228
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01111

<400> 39228
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39229
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01112

<400> 39229
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39230
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01113

<400> 39230
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc uucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39231
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01114

<400> 39231
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39232
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01115

<400> 39232
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc uucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39233
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01116

<400> 39233
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39234
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01117

<400> 39234
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39235
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01118

<400> 39235
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39236
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01119

<400> 39236
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39237
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01120

<400> 39237
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acguuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39238
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01121

<400> 39238
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39239
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01122

<400> 39239
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39240
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01123

<400> 39240
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39241
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01124

<400> 39241
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaauaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39242
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01125

<400> 39242
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39243
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01126

<400> 39243
augaaggcaa cacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39244
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01127

<400> 39244
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39245
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01128

<400> 39245

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuuaggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

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gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

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aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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hemagglutinin__InfluenzaA__AEO01129

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

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uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

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aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

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ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

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augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

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ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

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caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

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aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39254
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01137

<400> 39254
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39255
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01138

<400> 39255
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39256
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01139

<400> 39256

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggu 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39257
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01140

<400> 39257
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39258
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01141

<400> 39258
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39259
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01142

<400> 39259
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39260
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01144

<400> 39260
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcuaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39261
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<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AEO01145

<400> 39261
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39262
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01146

<400> 39262
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caauccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39263
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01147

<400> 39263

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39264
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01148

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39265
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01149

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39266
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01150

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39267
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01151

<400> 39267
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39268
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01152

<400> 39268
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39269
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<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01153

<400> 39269
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua auaauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucaaauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaccuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39270
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01154

<400> 39270
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39271
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01155

<400> 39271
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39272
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01156

<400> 39272
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39273
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01157

<400> 39273
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cccaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39274
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01158

<400> 39274

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39275
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01159

<400> 39275
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39276
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01160

<400> 39276
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39277
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01161

<400> 39277
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39278
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01162

<400> 39278
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39279
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01163

<400> 39279
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39280
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01164

<400> 39280
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39281
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01165

<400> 39281

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ugaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa guucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcggua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39282
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01166

<400> 39282
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39283
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01167

<400> 39283
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39284
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01168

<400> 39284
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39285
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01169

<400> 39285
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39286
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01170

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39287
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01171

<400> 39287
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39288
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01172

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39289
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01173

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gaggcaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39290
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01174

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39291
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01176

<400> 39291
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39292
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01177

<400> 39292

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39293
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01179

<400> 39293
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugagg cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39294
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01180

<400> 39294
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39295
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01181

<400> 39295
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugagg cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39296
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01182

<400> 39296
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39297
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01183

<400> 39297
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39298
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01184

<400> 39298
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39299
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01185

<400> 39299

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39300
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01186

<400> 39300
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39301
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01187

<400> 39301
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39302
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01188

<400> 39302
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39303
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01189

<400> 39303
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39304
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01191

<400> 39304
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39305
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01192

<400> 39305
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39306
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01193

<400> 39306
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaaugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39307
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01194

<400> 39307
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39308
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01195

<400> 39308
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39309
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01196

<400> 39309
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39310
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01197

<400> 39310

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39311
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01198

<400> 39311
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39312
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01200

<400> 39312
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauacg aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39313
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01201

<400> 39313
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagaaaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuguugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 39314
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01202

<400> 39314
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39315
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01203

<400> 39315
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39316
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01204

<400> 39316
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39317
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01205

<400> 39317

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39318
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01206

<400> 39318
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39319
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01207

<400> 39319
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39320
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01208

<400> 39320
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39321
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01209

<400> 39321
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39322
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01210

<400> 39322
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39323
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01211

<400> 39323
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39324
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01212

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39325
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01213

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39326
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01214

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39327
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01215

<400> 39327
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39328
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01216

<400> 39328
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

guagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39329
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01217

<400> 39329
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39330
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01218

<400> 39330
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccacu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39331
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01219

<400> 39331
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39332
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01220

<400> 39332
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39333
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01221

<400> 39333
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39334
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01222

<400> 39334
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39335
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01223

<400> 39335

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39336
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01224

<400> 39336
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa cggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39337
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01225

<400> 39337
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacagua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39338
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01226

<400> 39338
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugauggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39339
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01227

<400> 39339
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39340
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01228

<400> 39340
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39341
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01229

<400> 39341
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39342
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01230

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc aaaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39343
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01231

<400> 39343
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39344
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01232

<400> 39344
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39345
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01233

<400> 39345
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39346
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01234

<400> 39346

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39347
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01235

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01236

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuauuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01237

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39350
<211> 1701
<212> RNA
<213> Artificial Sequence

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39351
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01240

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39352
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01241

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39353
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01242

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39354
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01244

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39355
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01245

<400> 39355
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39356
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01247

<400> 39356
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauucuca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39357
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01248

<400> 39357
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39358
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01249

<400> 39358
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39359
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01250

<400> 39359
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugaagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39360
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01251

<400> 39360
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39361
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01252

<400> 39361
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39362
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01253

<400> 39362
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua uuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39363
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01254

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua auaauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39364
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<212> RNA
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39365
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39366
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39367
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01259

<400> 39367
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua auaauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39368
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01260

<400> 39368
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccaggg gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39369
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01261

<400> 39369
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cucuacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacagggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39370
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01262

<400> 39370
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39371
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01263

<400> 39371

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39372
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01264

<400> 39372
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugau gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39373
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01265

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39374
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01266

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagaugc accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39375
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01267

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39376
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01268

<400> 39376
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguug aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39377
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01269

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auggagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39378
<211> 1701
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hemagglutinin__InfluenzaA__AEO01270

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39381
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39382
<211> 1701
<212> RNA
<213> Artificial Sequence

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<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39383
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

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auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguug aaaaacaaug ccgaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39385
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01277

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39386
<211> 1701
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<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AEO01278

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagcgaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39387
<211> 1701
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<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AEO01279

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaac ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 39388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01282

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gcgaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 39389
<211> 1701
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<220>
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hemagglutinin__InfluenzaA__AEO01283

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa accuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aauuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau cgacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39390
<211> 1701
<212> RNA
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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caguguagaa uauguauuua a 1701

<210> 39392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39393
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01288

<400> 39394
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39395
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01289

<400> 39395
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01290

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggagagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cucauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39397
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01291

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01292

<400> 39398
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39399
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01294

<400> 39399
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39400
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01295

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac uauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39401
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01296

<400> 39401
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01297

<400> 39402
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01298

<400> 39403
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaguc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01299

<400> 39404
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39405
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01300

<400> 39405
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa cgucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01301

<400> 39406
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39407
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01302

<400> 39407

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01303

<400> 39408
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39409
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01304

<400> 39409
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaggaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39410
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01305

<400> 39410
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39411
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01306

<400> 39411
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01307

<400> 39412
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39413
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01308

<400> 39413
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01309

<400> 39414
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc aaaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39415
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01310

<400> 39415
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauagagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01311

<400> 39416
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39417
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01312

<400> 39417
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

auaguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01313

<400> 39418

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39419
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01314

<400> 39419
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucccucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39420
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01315

<400> 39420
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacaggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aagcucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01316

<400> 39421
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01317

<400> 39422
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39423
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01318

<400> 39423
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01319

<400> 39424
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39425
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01321

<400> 39425

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg cucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01322

<400> 39426
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39427
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01323

<400> 39427
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01324

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39429
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01326

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag gaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39431
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01327

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01328

<400> 39432
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39433
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01330

<400> 39433
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01331

<400> 39434
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagggggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaguuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39435
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01332

<400> 39435
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguua 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuguca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auggagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01333

<400> 39436

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39437
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01334

<400> 39437
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01335

<400> 39438
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01336

<400> 39439
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01337

<400> 39440
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39441
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01338

<400> 39441
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01339

<400> 39442
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuauuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39443
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01340

<400> 39443

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01341

<400> 39444
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39445
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01342

<400> 39445
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01343

<400> 39446
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39447
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01344

<400> 39447
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01345

<400> 39448
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuauuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01346

<400> 39449
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01347

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39451
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01348

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01349

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaaa auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacccagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu uacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc aaaggaagca aaacuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39453
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01350

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 39454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01351

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39455
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01352

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01353

<400> 39456
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucuuccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01354

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggagu caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01355

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39459
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01356

<400> 39459
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaguacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01358

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uguguagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagguaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01359

<400> 39461

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01360

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39463
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccggga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01362

<400> 39464
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaag aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39465
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01363

<400> 39465
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01365

<400> 39466
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu aaaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01366

<400> 39467
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcagua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01367

<400> 39468
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaacuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01368

<400> 39469
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaauac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01369

<400> 39470
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01370

<400> 39471
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01371

<400> 39472

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39473
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01372

<400> 39473
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01373

<400> 39474
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39475
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01374

<400> 39475
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaua uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01375

<400> 39476
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcaggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39477
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01376

<400> 39477
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01377

<400> 39478
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggucuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01378

<400> 39479

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01379

<400> 39480
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01380

<400> 39481
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01381

<400> 39482
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcaggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39483
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01382

<400> 39483
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01383

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01384

<400> 39485
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uauccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01385

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcaaaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01386

<400> 39487
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01387

<400> 39488
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auauacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01388

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01389

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aacaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01390

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguggagaca 660

ucaagauaca gcaagaaggu caagccggaa auagcaauaa gacccagagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agagguagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01391

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacuguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39493
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01392

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01393

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39495
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01394

<400> 39495
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01395

<400> 39496
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuuccucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01396

<400> 39497

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01397

<400> 39498
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aauacagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01398

<400> 39499
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug caaauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01399

<400> 39500
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39501
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01402

<400> 39501
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01403

<400> 39502
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39503
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01404

<400> 39503
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01405

<400> 39504
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39505
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01407

<400> 39505
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01408

<400> 39506
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguu cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01409

<400> 39507
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01410

<400> 39508

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39509
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01411

<400> 39509
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01412

<400> 39510
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39511
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01413

<400> 39511
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaagcaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01414

<400> 39512
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcagua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39513
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01416

<400> 39513
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu agaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01418

<400> 39514
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01419

<400> 39515

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01420

<400> 39516
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaauacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagu 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01421

<400> 39517
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01422

<400> 39518
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu uauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39519
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01423

<400> 39519
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaacuauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguaauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01424

<400> 39520
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01425

<400> 39521
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01426

<400> 39522
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39523
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01427

<400> 39523
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaauuc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01428

<400> 39524
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39525
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01429

<400> 39525
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01430

<400> 39526

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uguaucgguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugaugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01431

<400> 39527
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01432

<400> 39528
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39529
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01434

<400> 39529
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu gaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39530
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01435

<400> 39530
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagucuac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39531
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01436

<400> 39531
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01437

<400> 39532
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39533
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01438

<400> 39533

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01440

<400> 39534
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagga uauguauuua a 1701

<210> 39535
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01441

<400> 39535
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugauggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01442

<400> 39536
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39537
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01443

<400> 39537
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01444

<400> 39538
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01445

<400> 39539
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01446

<400> 39540
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01447

<400> 39541
augaaggcaa uacuaguagu ucugcuauau acauuugcua ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu agaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacuau cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01448

<400> 39542
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39543
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01449

<400> 39543
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01450

<400> 39544

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 39545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01451

<400> 39545
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01452

<400> 39546
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcuga agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01453

<400> 39547
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaguuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagcgggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01454

<400> 39548
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu cauacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaccacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39549
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01455

<400> 39549
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcggg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01456

<400> 39550
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggacagaaa ugcuggaucu 840

gguauuauca uuucagaugc accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01457

<400> 39551

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01458

<400> 39552
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01459

<400> 39553
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01461

<400> 39554
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacuagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 39555
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01462

<400> 39555
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01463

<400> 39556
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccggga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01464

<400> 39557
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaggu gagggaucaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggacagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01465

<400> 39558
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01466

<400> 39559
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01467

<400> 39560
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccggga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01468

<400> 39561
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacgucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01469

<400> 39562
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa uggaucucua 1680

caguguagaa uauguauuua a 1701

<210> 39563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01470

<400> 39563
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuagugau accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01471

<400> 39564
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01472

<400> 39565
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01473

<400> 39566
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39567
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01474

<400> 39567
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01475

<400> 39568
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucaguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39569
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01476

<400> 39569

augaaggcaa uacuaguagu ucugcuauau acauuuucaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gacuugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01477

<400> 39570
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39571
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01478

<400> 39571
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01479

<400> 39572
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gggaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39573
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01480

<400> 39573
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01482

<400> 39574
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39575
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01483

<400> 39575
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01484

<400> 39576
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39577
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01485

<400> 39577
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auaacaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01487

<400> 39578
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

uguuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

acgcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39579
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01488

<400> 39579
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01489

<400> 39580

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caggccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39581
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01490

<400> 39581
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01491

<400> 39582
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagu auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccuaaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01492

<400> 39583
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01493

<400> 39584
augaaggcaa uacuaguagu ucugcuauau acauucgcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccacu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39585
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01494

<400> 39585
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacacua 60

ugcacagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39586
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01496

<400> 39586
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39587
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01497

<400> 39587

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccggga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaau acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01498

<400> 39588
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39589
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01499

<400> 39589
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccauau 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01500

<400> 39590
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39591
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01501

<400> 39591
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01502

<400> 39592
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01503

<400> 39593
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga guacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01505

<400> 39594
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01506

<400> 39595
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01507

<400> 39596
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01508

<400> 39597
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39598
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01510

<400> 39598
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39599
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01511

<400> 39599
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacaaca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39600
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01512

<400> 39600
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccggga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac aagugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39601
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01513

<400> 39601
augaaggcaa uacuagcagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cggucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01514

<400> 39602
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaugc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc ugaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39603
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01515

<400> 39603
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacguucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01516

<400> 39604
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39605
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01517

<400> 39605

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01518

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gauaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacacc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01519

<400> 39607
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caggccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01520

<400> 39608
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucagucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39609
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01521

<400> 39609
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01522

<400> 39610
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacagag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa auaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39611
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01523

<400> 39611
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01524

<400> 39612
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39613
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01525

<400> 39613
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaag gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagga ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa accuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gacugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aauuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau cgacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01526

<400> 39614
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39615
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01527

<400> 39615
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01529

<400> 39616

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39617
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01530

<400> 39617
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01531

<400> 39618
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaauac agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01532

<400> 39619
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01533

<400> 39620
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39621
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01534

<400> 39621
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agaucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguccugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 39622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01535

<400> 39622
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacucuugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01536

<400> 39623

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01537

<400> 39624
augaaggcaa uacuaguagu ucugcuauau acauuugaaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucagucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39625
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01538

<400> 39625
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa gggguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01539

<400> 39626
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39627
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01540

<400> 39627
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuagccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01541

<400> 39628
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01542

<400> 39629
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01543

<400> 39630
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39631
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01544

<400> 39631
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01545

<400> 39632
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auagcgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucgucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39633
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01546

<400> 39633
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01547

<400> 39634

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39635
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01548

<400> 39635
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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01549

<400> 39636
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39637
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01550

<400> 39637
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39638
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01551

<400> 39638
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39639
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01552

<400> 39639
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39640
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01553

<400> 39640
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39641
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01554

<400> 39641

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39642
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01555

<400> 39642
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cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

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auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

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uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

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aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

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ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

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ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccaa gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

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ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

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aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

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aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

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aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01564

<400> 39650
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01565

<400> 39651
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01566

<400> 39652

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39653
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01567

<400> 39653
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01568

<400> 39654
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39655
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01569

<400> 39655
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01570

<400> 39656
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39657
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01571

<400> 39657
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39658
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01572

<400> 39658
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39659
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01573

<400> 39659

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39660
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01574

<400> 39660
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39661
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01575

<400> 39661
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39662
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01576

<400> 39662
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39663
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01577

<400> 39663
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39664
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01578

<400> 39664
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39665
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01579

<400> 39665
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39666
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01581

<400> 39666
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39667
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01582

<400> 39667
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39668
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01583

<400> 39668
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39669
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01584

<400> 39669
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39670
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01585

<400> 39670

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39671
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01586

<400> 39671
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01587

<400> 39672
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39673
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01588

<400> 39673
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39675
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39676
<211> 1701
<212> RNA
<213> Artificial Sequence

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 39677
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01592

<400> 39677

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39678
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauacuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

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augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39679
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

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auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacgcaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

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caguguagaa uauguauuua a 1701

<210> 39680
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

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uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39681
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<212> RNA

<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AEO01596

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 39682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01597

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39683
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<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa cgguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39684
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39685
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39686
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01601

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaccag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39687
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01602

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39688
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01603

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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caguguagaa uauguauuua a 1701

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hemagglutinin__InfluenzaA__AEO01604

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<212> RNA
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaccag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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<210> 39691
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01606

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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<210> 39692
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO01607

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucag 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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<212> RNA
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucagucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<212> RNA
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<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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caguguagaa uauguauuua a 1701

<210> 39695
<211> 1701
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<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uauguauuua a 1701

<210> 39696
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39697
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01612

<400> 39697
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugcaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39698
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01613

<400> 39698
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cguauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39699
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01614

<400> 39699
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39700
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01615

<400> 39700
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uacuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacug gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39701
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01616

<400> 39701
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccggga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01617

<400> 39702
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39703
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01619

<400> 39703
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39704
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01620

<400> 39704
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39705
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01621

<400> 39705
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO01625

<400> 39706

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ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagauccaau 480

aacaguuucu uuaguagacu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg auggcuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgagguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39707
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01636

<400> 39707
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01642

<400> 39708
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aaccguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuaaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagggucac auacggggcc 960

uguccccagau augugaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39709
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01663

<400> 39709
augaaaguaa aacuacuggu ccuguuaugc acauuugcag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc acaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaagagcacc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucccaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaga 1560

uuggaaucaa ugggagucua ucagauucua gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39710
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01674

<400> 39710
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc acaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugaaaauc uaaaagcccc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaggcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaga 1560

uuggaaucaa ugggagucua ucagauucua gcgauuuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39711
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01691

<400> 39711
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuccgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagauccaau 480

aacaguuucu uuaguagacu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugugauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

auugggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgagguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39712
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO01699

<400> 39712
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaaaaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

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cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccaggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcc uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

ccauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagccua ucagauucug gcgaucuacu caacaggcgc caguucucug 1620

guccuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

cguagaauau gcaucuaa 1698

<210> 39713
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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<400> 39713

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gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cuguaaccgg agugucagca ucaugcuccc acaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaauuaag agaucaagau 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaacaau auuugaggca 780

aauggaaauc uaauagcacc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauuau aucucaagug uaacggugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucucugcag 1680

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<212> RNA
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<400> 39714
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca ucgcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39715
<211> 1701
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AEO72176

<400> 39715
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

ccuaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacug guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg cagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39716
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 39716
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gacggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccuuggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccaggaaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauauc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggacu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaaau gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39717
<211> 1704
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO89021

<400> 39717
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugaaaaaauu ccgaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggaa uucaucauuc uaauaaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccuga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

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auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

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agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

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gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39718
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccuuggaaac 240

ccaaugugug acgaauucau caaugugcca gaaugguсuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu aaaacacuua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggggu gagcucagua uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauauc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggaa uucaccauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aguuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

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auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

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ggaaugguag augguuggua uggauaccac cauagcaaug agcaggggag uggguacgcu 1140

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auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

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uuacaaugca gaauuugcau uuaa 1704

<210> 39719
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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<400> 39719
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acuguuacac augcccaaga uauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaauguga uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggga uucaucauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuuaaccaga gauugguacc gaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccaaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

cugaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

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ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gaccuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugca uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

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hemagglutinin__InfluenzaA__AEO89065

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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagua uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggaa uucaucauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccuga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgagugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagag 1020

agaagaagaa aaagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga acuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

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<212> RNA
<213> Artificial Sequence

<220>
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaguucau caaugugccg gaaugguucuu acauagugga gaaggccaac 300

ccggccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugacaccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca acaaggaaga ucuuuugaua cugugggggga uucaucauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaucca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguagaaua ugguaacugc aauacaaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaag 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca caaauaaggu caacucgauc 1200

auugacaaga ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaaga 1260

agaauagaga auuuaaauaa gaaaauggaa gacggauucc uagaugucug gaccuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ucgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39722
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89091

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acuguuacac augcccaaaa cauacuggaa aagacacaua acgggaagcu cugcgauaua 180

gauggaguga agccucugau uuuaaaagau uguaguguag cuggauggcu ccucggaaau 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug aucucuguua cccggggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucaaca uguccauacc agggaacgcc cucuuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaaugaugag 600

gcagagcagg caaagcucua ccaaaaccca acuaccuaua uuucaguugg gacaucaaca 660

cuaaaccaga gguugguucc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccauaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggauu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag auuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cugagggaua augcaaagga gcuggggaac 1440

gguuguuucg aguucuauca caaaugugau gaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gauggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

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<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga gaagaacguu 120

acuguuacac augcucaaga uauacuggaa aagacacaca acgggaaacu cugugaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucau acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uuaagcagga uaaaccauuu ugagaaaauu cagaucaucc ccaaaaauuc uugguccgau 420

caugaggccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaaugaugca 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cugaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucggcaauu 840

augaaaagug agguggagua ugguaacugc aacaccaagu gucaaacgcc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagguu uuauagaggg cggauggcag 1080

ggaaugguag augguuggua uggguuucac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucaauc 1200

aucgacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagagagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugagcuuc ugguucucau ggaaaaugag agaacucuag acuuccauga uucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau gaugaaugca uggaaagugu aaagaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauuag aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39724
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO89109

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aucgguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggag aagacacaua acgggaaacu cugcgaucua 180

gauggaguga agccucugau ucuacgagau uguaguguag ccggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguсuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggа uucaucauuc uaaugaugca 600

gcagagcaga uaaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gguugguaac aaaaauagcc acuagaccca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcu acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa ccuggaaagg 1260

agaauagaga acuugaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39725
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89127

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aucgguuacc augcaaacaa cucgacagag caaguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggag aagacacaua acgggaaacu cugcgaucua 180

gauggaguga agccucugau ucugcgagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauuuau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggga uucaucauuc uaaugaugca 600

gcagagcaga uaaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcu acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa gaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcgaua gauggaguca ccaauaaggu caacucaauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuggaaagg 1260

agaauagaga acuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

auaaaauugg aaucaauggg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39726
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89145

<400> 39726
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acuguuacac augcccaaga uauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga aaccucugau ucuaggagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acaaauucau caaugugccg gaauggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggagu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcucac caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggga uucaucauuc uaauaaugcg 600

gcagagcagg aaaagcuuua ucaaaaccca accaccuaua uuucaguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauauuaaaa ccaaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucagcaauu 840

augaaaagug gaguggaaua ugguaacugc aacacaaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu aucgcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugauaaaa ugaacaccca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

aggauagaaa auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaau 1440

gguuguuucg aguucuauca caaaugugau aaugaaugca uggaaagugu aagaaaugga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucuac agcugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39727
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89163

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acuguuacac augcucaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucgggaac 240

ccaaugugug acgaauucau cgaugugcca gaaugggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaaua cagaucaucc ccaaagauuc uuggccagau 420

caugaagccu cauuggggu gagcucagca uguccauacc agggaaauuc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagggc aaugcauacc caacaauaaa gaaaagcuac 540

aauaauacca acaaagaaga ucucuugaua cugugggggga uccaccaucc uaaugaugag 600

gcagagcaga caaggcucua ccaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucaacaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaggu gucagacucc gaugggggcg 900

auuaacucua guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucaaagagag 1020

agaagaagaa gaaaaagagg acuguuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccacagca augagcaggg gagugguau 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugaa gcaguaggaa gggaauuuaa uaacuuagag 1260

aggagaauag agaauuuaaa caagaagaug gaagacggau uucuagaugu cuggacuuau 1320

aaugcugaac uccugguucu cauggaaaau gagagaacuc uagacuucca ugacucaaau 1380

gucaagaacc uuuacgacaa ggucagacua cagcuuaggg auaaugcaaa agagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

aguucccuag uacuggcaau caugguugcu ggucuaucuu uauggaugug uuccaacggg 1680

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<210> 39728
<211> 1704
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<220>
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hemagglutinin__InfluenzaA__AEO89172

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaaa cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccuuugau uuuaagagau ugcaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauuuau caaugugcca gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccguauc agggaacgcc cucuuuuuuc 480

aggaauguag uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaacacca accaggaaga ucuuuuggua cugugggggga uucaccauuc uaaugaugcg 600

acagaacaga uaaagcucua ucaaaaccca accaccuaug uuuccguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ucgaaugaug caaucaacuu cgaaaguaau 780

gggaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc agcaccaagu gucaaacucc gauaggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauaguaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccaccca aaaggcaaua gauggaguca ccaauaaggu caacucuauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag aggacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cugagggaua augcaaagga gcuggguaac 1440

gguugcuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauuaguggg 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcgc uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39729
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO89181

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auugguuauc augcaaauaa cucgacagag cagguugaca caauaaugga aaagaacgug 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgguaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucggaaau 240

ccaaugugug acgaauucau caaugugcca gaauggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu gaaacaccua 360

uugagcagga uaaaccauuu ugagaaaaua cagaucaucc ccaaaaauuc uuggucagau 420

caugaagccu cguuggggu gagugcagca uguccauacc agggaaaauc cuccuucuuc 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaggcuac 540

aauaauacca accaagaaga ucucuuggua cugugggga uucaccaucc uaaugaugag 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuaggucca aaauaaacgg gcaaaguggc 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucaacaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaggu gucagacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaacu aguccuugcg acugggcuca gaaauagucc ucaaagagag 1020

agaaggagaa aaagaggauu guuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cacagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aaucuacuca aaaggcaaua gacgggguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guaggaaggg aauuuaauaa cuuagagagg 1260

agaauagaga auuugaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aggaaccuuu acgacaaggu cagacuacag cuuaaggaua augcaaaaga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aaucuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucccuaguac uggcaaucau gauggcuggu cuaucuuuau ggauguguuc caacgggucg 1680

uuacagugca gaauuugcau uuaa 1704

<210> 39730
<211> 1704
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AEO89192

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aucgguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaua acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggga uucaucauuc uaaugaugcg 600

gcagagcaga uaaagcucua ucaaaaucca accaccuaug uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaguaaacgg gcaaaguggg 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcu acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguacccc cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gauggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaucuuu acgacaaggu ccgauuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagguuaa agagagagga aauaaaugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39731
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89203

<400> 39731

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aucgguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaua acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguсuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggа uucaucauuc uaaugaugcg 600

gcagagcaga uaaagcucua ucaaaaucca accaccuaug uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaguaaacgg gcaaaguggg 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcu acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gauggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaucuuu acgacaaggu ccgauuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagguuaa agagagagga aauaaaugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39732
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89213

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aucgguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaua acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggga uucaucauuc uaaugaugcg 600

gcagagcaga uaaagcucua ucaaaaucca accaccuaug uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaguaaacgg gcaaaguggg 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcu acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gauggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaucuuu acgacaaggu ccgauuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagguuaa agagagagga aauaaaugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39733
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89224

<400> 39733
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aucgguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaua acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggga uucaucauuc uaaugaugcg 600

gcagagcaga uaaagcucua ucaaaaucca accaccuaug uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaguaaacgg gcaaaguggg 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcu acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gauggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaucuuu acgacaaggu ccgauuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagguuaa agagagagga aauaaaugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguagcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39734
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89235

<400> 39734
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga uauacuggaa aagacacaca acgggaagcu cugugaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau cucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu caaaucaucc ccaaaaguuc uugguccgau 420

caugaagccu cauuaggggu gagcucagca uguccauacc agggaacacc cuccuuuuuc 480

agaaauguga uauggcuuau caagaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaaugaugag 600

gcagagcaga uaaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaucaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccggacgaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaauucua guaugccauu ccacaacaua cacccucuca cuaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

aaaagaagaa aaagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga acuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugca uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacauaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39735
<211> 1704
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEO89246

<400> 39735
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga uauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaagccaac 300

ccagccaaug accucuguua cccagggaau cucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu cauuaggagu gagcucagca uguccauacc agggaacacc cuccuuuuuc 480

agaaaugugg uauggcuuau caagaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaaugaugag 600

gcagagcaga uaaagcucua ucaaaaucca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguucc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccggacgaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucugcaauu 840

augaaaagug aaguggaaua cgguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca cuaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauu 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaguaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggguucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga acuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugca uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

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<212> RNA
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<220>
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<400> 39736
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccuuugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauuuau caaugugcca gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccguauc agggaacgcc cucuuuuuuc 480

aggaauguag uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaacacca accaggaaga ucuuuuggua cugugggggа uucaccauuc uaaugaugcg 600

gcagaacaga uaaagcucua ucaaaaccca accaccuaug uuuccguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ucgaaugaug caaucaacuu cgagaguaau 780

gggaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

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auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauaguaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccaccca aaaggcaaua gauggaguca ccaauaaggu caacucuauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag aggacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cugagggaua augcaaagga gcuggguaac 1440

gguugcuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauuagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagugc uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39737
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccuuugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauuuau caaugugcca gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccguauc agggaacgcc cucuuuuuuc 480

aggaauguag uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaacacca accaggaaga ucuuuuggua cugugggga uucaccauuc uaaugaugcg 600

gcagaacaga uaaagcucua ucaaaaccca accaccuaug uuuccguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ucgaaugaug caaucaacuu cgagaguaau 780

gggaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc agcaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauaguaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccaccca aaaggcaaua gauggaguca ccaauaaggu caacucuauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag aggacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cugagggaua augcaaagga gcuggguaac 1440

gguugcuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauuagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagugc uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39738
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acuguuacac augcccaaga uauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga aaccucugau ucuaggagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acaaauucau caaugugccg gaauggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggagu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcucau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaauaaugcg 600

gcagagcagg aaaagcuuua ucaaaaccca accaccuaua uuucaguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauauuaaaa ccaaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucagcaauu 840

augaaaagug gagugaaaua ugguaacugc aacacaaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu aucgcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugauaaaa ugaacaccca guuugaggcu guuggaaggg aauuuaauaa ccuagaaagg 1260

aggauagaaa auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaau 1440

gguuguuucg aguucuauca caaaugugau aaugaaugca uggaaagugu aagaaaugga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucuac agcugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39739
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<212> RNA
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hemagglutinin__InfluenzaA__AEO89289

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acuguuacac augcccagga uauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga aaccucugau uuuaggagau uguaguguag cuggauggcu ccuaggaaau 240

ccaaugugug acaaauucau caaugugccg gaaugguucuu acauaguaga gaaggucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu aagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggagu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uguggcucau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggga uucaucauuc uaauaaugug 600

gcagagcagg aaaagcuuua ucaaaaccca accaccuaca uuucaguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauauuaaaa ccaaaugaua caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucagcaauu 840

augaaaagug gaguggaaua ugguaacugc aacacaaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu aucgcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugauaaaa ugaacaccca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

aggauagaaa auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaau 1440

gguuguuucg aguucuauca caaaugugau aaugaaugca uggaaagugu aagaaaugga 1500

acguaugacu acccgcggua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucuac agcugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39740
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<212> RNA
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<220>
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aucgguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggag aagacacaua acgggaaacu cugcgaucua 180

gauggaguga agccucugau ucuacgagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggga uucaucauuc uaaugaugca 600

gcagagcaga uaaagcucua ucaacaccca accacuuaua uuuccguugg gacaucaaca 660

cuaaaucaga gauugguacc aaaaauagcc acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaag ccgaaugaug caaucaauuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggagggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccauugggga augccccaaa 960

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agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaagggag uggguacgcu 1140

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auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuggaaagg 1260

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gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

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gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaaaugga 1560

guaaaauugg aaucaauggg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuuu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 39741
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEO89311

<400> 39741
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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugcca gaaugguсuu acauaguaga gaaggccaau 300

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caugaagccu cauuggggu gagcgcagca uguccauacc agggaaauuc cucauucuuc 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaagcuac 540

aauaauacca accaagaaga ucucuugaua cugugggga uucaccaucc uaaugaugag 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaguaaacgg gcaaagugga 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucaacaauu 840

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auaaacucua guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaccaaauu aguccuugcg acugggcuca gaaauagucc ucaaagagag 1020

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ggaaugguag augguuggua uggguaccac cacagcaaug agcaggggag uggguacgcu 1140

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auugacaaaa ugaacacuca guuugaggcc guaggaagag aauuuaauaa auuagagagg 1260

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gguuguuucg aguucuauca caaauguaau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

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ucccuaguac uggcaaucau gauggcuggu cuaucuuuau ggauguguuc caacgggucg 1680

uuacagugca gaauuugcau uuaa 1704

<210> 39742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEO99215

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug cauaacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

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acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 39743
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38187

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gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uugaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agcgucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacuuugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaggggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac gugcacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua caaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug caacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggaguuaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39744
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38188

<400> 39744
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agcgucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaggggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga acaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39745
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38189

<400> 39745
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacauucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcuaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39746
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38190

<400> 39746
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagug uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaaccg 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuc 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagccc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugucc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39747
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38191

<400> 39747
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39748
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38192

<400> 39748
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua accaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaauacacc aauggauaaa ugugauacga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cccaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39749
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38193

<400> 39749

augaaaguaa aacuacugau ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu cauacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauc ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcaa aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39750
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38194

<400> 39750
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuauug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagacgguu gguaugguua ucaucaucgg aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca auaaauugga aagaaggaug 1260

gaaaacuuga auaaaagagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucgaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39751
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38195

<400> 39751
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggga uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agcgucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcuaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaagca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaggggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug caacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39752
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38196

<400> 39752
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaagga aagcucaugg 420

cccaaccaca ccguaaccgg agcgucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaggggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gaauauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc aaguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39753
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38197

<400> 39753
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggga uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agcgucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaggggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug caacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39754
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ38198

<400> 39754
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agcgucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaucu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaggggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39755
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ62909

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccaaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua acgauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ62910

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ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacagcu 300

aguccagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcggg agcaaaaagc 480

uucuacaaaa auuuaaugug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gucacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggagaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

guucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugcuauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaacu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauuaga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39757
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ62911

<400> 39757
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ62912

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccaaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua acgauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEQ62915

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augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AER08646

<400> 39760

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08648

<400> 39761
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaacu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08652

<400> 39762
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaguga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08654

<400> 39763
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaguga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08656

<400> 39764
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcuuguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaaugca aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39765
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08660

<400> 39765
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08664

<400> 39766
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cagugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ugagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AER08668

<400> 39767

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacca ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucgau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcucu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 39768
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugguag augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucgga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucgau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcucu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08672

<400> 39769
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg aggaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cagugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ugagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08674

<400> 39770
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auggugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuucaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39771
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08676

<400> 39771
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08678

<400> 39772
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39773
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08680

<400> 39773
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg aucuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08682

<400> 39774
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39775
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AER08684

<400> 39775
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaacuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39776
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08686

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauauugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39777
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08688

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aguucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39778
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AER08690

<400> 39778

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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39779
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08692

<400> 39779
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccccaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08698

<400> 39780
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

agcuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39781
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER08700

<400> 39781
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauuggcug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaaaca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucgau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcucu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AER92712

<400> 39782
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uugaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugcga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39783
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AET10090

<400> 39783
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39784
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10091

<400> 39784
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10092

<400> 39785

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10094

<400> 39786
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augugacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaguuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39787
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10095

<400> 39787
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga uacacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugcgac aaugccugca uagaaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10096

<400> 39788
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

aaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucagg caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39789
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10098

<400> 39789
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagu 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacga ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10099

<400> 39790
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aauauuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39791
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 39792
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggugcgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacgggacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccccaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcccuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuuuga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaaa 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacga ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggagaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuc guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39794
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucggaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 39795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AET10104

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucagg caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugggaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39796
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AET10105

<400> 39796

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aauauuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10106

<400> 39797
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ggaaauuaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10107

<400> 39798
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 39799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacgggacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39800
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39801
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10110

<400> 39801
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 39802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10111

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aguaacagca cagggaaucu aauugguccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39803
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10113

<400> 39803

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugca aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET10114

<400> 39804
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uuuccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

augugcaaca uuugcauuug a 1701

<210> 39805
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET50439

<400> 39805
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 39806
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET50440

<400> 39806
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccacccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 39807
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET50441

<400> 39807
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccacccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag aggucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 39808
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET50442

<400> 39808
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaauaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccacccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag aggucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 39809
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84163

<400> 39809
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaaucacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaguaauc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaagua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagacgguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 39810
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84174

<400> 39810
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu uuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga uuagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39811
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84196

<400> 39811
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaaucacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacgaggaag aaugguuugu acccaacccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaaugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cacuauagca ggaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caagugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaacgcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc auaacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacagag agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39812
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84207

<400> 39812
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaccuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaaugauc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccaggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuagaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39813
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84218

<400> 39813
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uuugaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaaguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucgaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39814
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AET84229

<400> 39814

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gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaacccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccacccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39815
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84240

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggagucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39816
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AET84251

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguuaacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugucaaac accucaugga 900

gcuauaaaca gcugucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaagg agaaaauuga ugggugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39817
<211> 1698
<212> RNA
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaugga 900

gcuauaaaca gcugucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39818
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AET84284

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cuguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcuaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39819
<211> 1698
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AET84306

<400> 39819
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca uaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuc gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaauau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucaaauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39820
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AET84339

<400> 39820
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc caucaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaag 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39821
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84361

<400> 39821

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcc uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39822
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84372

<400> 39822
augaaaguaa aacuacuggu ccuguuaugc acauuuacug cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc caucaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39823
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84394

<400> 39823
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcc uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugaaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39824
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84405

<400> 39824
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaaa auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cacuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc caucaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagacggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39825
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84416

<400> 39825
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaggaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaacccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc caucaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39826
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84427

<400> 39826
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg ucgccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaaggauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg ggccauugcc gguuucauug aagggggug gacagggaug 1080

guagauggau gguacgguua ucaccaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39827
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84438

<400> 39827
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucacca cccgccuaac 600

auaggugucc aaaagacccu cuauaauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gcuaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39828
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET84449

<400> 39828
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcucu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugga ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccug ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39829
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AET98600

<400> 39829
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacug ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguggag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEV76874

<400> 39830
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caacccggaa auagaaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39831
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10574

<400> 39831
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEW10584

<400> 39832

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39833
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10594

<400> 39833
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39834
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10604

<400> 39834
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagca 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39835
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10614

<400> 39835
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauaa uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10624

<400> 39836
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39837
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10634

<400> 39837
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10644

<400> 39838
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39839
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10654

<400> 39839

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc uuuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10664

<400> 39840
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39841
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10674

<400> 39841
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcuga agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10684

<400> 39842
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39843
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10694

<400> 39843
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10704

<400> 39844
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39845
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10724

<400> 39845
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc uuuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10734

<400> 39846
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc caaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39847
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10744

<400> 39847
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucuaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10754

<400> 39848
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucuaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10764

<400> 39849
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcaaaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEW10774

<400> 39850

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gagugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10784

<400> 39851
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10794

<400> 39852
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10804

<400> 39853
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10814

<400> 39854
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39855
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10824

<400> 39855
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10834

<400> 39856
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10844

<400> 39857

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10854

<400> 39858
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auaacaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10864

<400> 39859
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10874

<400> 39860
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39861
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10884

<400> 39861
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10894

<400> 39862
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccugaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu ugccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10904

<400> 39863
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10914

<400> 39864
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10924

<400> 39865
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10934

<400> 39866
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccugaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu ugccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10944

<400> 39867
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEW10954

<400> 39868

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39869
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<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEW10964

<400> 39869
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10974

<400> 39870
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39871
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10984

<400> 39871
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW10994

<400> 39872
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39873
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11004

<400> 39873
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39874
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11014

<400> 39874
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39875
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11024

<400> 39875

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11034

<400> 39876
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39877
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEW11044

<400> 39877
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39878
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11054

<400> 39878
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39879
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11064

<400> 39879
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39880
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11074

<400> 39880
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39881
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11084

<400> 39881
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc uucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39882
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11094

<400> 39882
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39883
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11104

<400> 39883
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39884
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11114

<400> 39884
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39885
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11124

<400> 39885
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauuug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEW11134

<400> 39886

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca aagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11144

<400> 39887
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11154

<400> 39888
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39889
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11164

<400> 39889
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc uucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11174

<400> 39890
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc uucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11184

<400> 39891
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39892
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11194

<400> 39892
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39893
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEW11204

<400> 39893

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEW11214

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaccag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagagau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39897
<211> 1701
<212> RNA

<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AEW11244

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEW11254

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc uucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

gcuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaggu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39899
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11263

<400> 39899
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39900
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11273

<400> 39900
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11283

<400> 39901
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39902
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11293

<400> 39902
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39903
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11303

<400> 39903
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagag uauguauuua a 1701

<210> 39904
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEW11313

<400> 39904

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW11323

<400> 39905
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW22712

<400> 39906
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuauag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39907
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW22718

<400> 39907
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39908
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW22720

<400> 39908
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39909
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW22722

<400> 39909
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW22724

<400> 39910
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccagggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39911
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25297

<400> 39911

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucccggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccagg 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39912
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25306

<400> 39912
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacgcccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39913
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25315

<400> 39913
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucuggg ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25331

<400> 39914
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauaccuc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39915
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25349

<400> 39915
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaagaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39916
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEW25367

<400> 39916
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaacg ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auauacagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39917
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25377

<400> 39917
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aagaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac gcgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39918
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25385

<400> 39918
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugccauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39919
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25416

<400> 39919
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacuguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39920
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25446

<400> 39920
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auaaacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39921
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25454

<400> 39921
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEW25462

<400> 39922

augaaggcaa uacuaguagu ucugcuauau acuuuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

cccuacacua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25472

<400> 39923
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39924
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25482

<400> 39924
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaaa 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

ggagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uguaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39925
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25492

<400> 39925
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauauuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25501

<400> 39926
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug ccuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39927
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEW25509

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEW25519

<400> 39928
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucauacugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39929
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25528

<400> 39929

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaaaggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25545

<400> 39930
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggagu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguaaugg uaguuucccu gggggcaauc aguuucugga ugugcucuaa uggaucucua 1680

caguguagaa uauguauuua a 1701

<210> 39931
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25555

<400> 39931
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac uauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcgauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25564

<400> 39932
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuuuaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauagaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaggugag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacagggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39933
<211> 1701
<212> RNA

<213> Artificial Sequence

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<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25573

<400> 39933
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25582

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uguauagguu aucaugcgaa caauucaacg gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuaucc uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacuagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugggc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39935
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25590

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacaaucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagcgcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagcgagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacggcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuacaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguaucua a 1701

<210> 39936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25600

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39937
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25620

<400> 39937
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39938
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25629

<400> 39938
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcuga agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug aucaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39939
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25637

<400> 39939
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEW25646

<400> 39940

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa uggaucucua 1680

caguguagaa uauguauuua a 1701

<210> 39941
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25654

<400> 39941
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccc cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25662

<400> 39942
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39943
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25669

<400> 39943
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagagg gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa uggaucucua 1680

caguguagaa uauguauuua a 1701

<210> 39944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25678

<400> 39944
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaagg acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gagggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39945
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25687

<400> 39945
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cuuaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa uggaucucua 1680

caguguagaa uauguauuua a 1701

<210> 39946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25696

<400> 39946
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucauu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW25706

<400> 39947

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauacg aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39948
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEW91908

<400> 39948
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auugguuauc augcaaauaa cucgacagag cagguugaca caauaaugga aaagaacgug 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgguaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucggaaau 240

ccaaugugug acgaauucau caaugugcca gaauggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu gaaacaccua 360

uugagcagga uaaaccauuu ugagaaaaua cagaucaucc ccaaaaauuc uuggucagau 420

caugaagccu cguuggggu gagugcagca uguccauacc agggaaaauc cuccuucuuc 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaggcuac 540

aauaauacca accaagaaga ucucuuggua cugugggga uucaccaucc uaaugaugag 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuaggucca aaauaaacgg gcaaaguggc 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucaacaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaggu gucagacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaacu aguccuugcg acugggcuca gaaauagccc ucaaggagag 1020

acgcgaggac uguuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu augguacca ccacagcaau gagcagggga gugguacgc ugcagacaaa 1140

gaaucuacuc aaaaggcaau agacgggguc accaauaagg ucaacucgau cauugacaaa 1200

augaacacuc aguuugaggc cguaggaagg gaauuuaaua acuuagagag gagaauagag 1260

aauuugaaca agaagaugga agauggauuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cugguucuca uggaaaauga gagaacucua gacuuccaug acucaaaugu caggaaccuu 1380

uacgacaagg ucagacuaca gcuuaaggau aaugcaaaag agcuggguaa cgguuguuuc 1440

gaguucuauc acaaauguga uaaugaaugu auggaaagug uaagaaacgg aacguaugac 1500

uacccgcagu auucagaaga agcaagauua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaaucuacca aauacuguca auuuauucaa caguggcgag uucccuagua 1620

cuggcaauca ugauggcugg ucuaucuuua uggauguguu ccaacgggguc guuacagugc 1680

agaauuugca uuuaa 1695

<210> 39949
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX09175

<400> 39949
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guagcaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauuaga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25795

<400> 39950
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39951
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25797

<400> 39951
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augguacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39952
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25798

<400> 39952
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca augguacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39953
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25800

<400> 39953
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39954
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25803

<400> 39954
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39955
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25808

<400> 39955
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25810

<400> 39956
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gacuugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39957
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25811

<400> 39957
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuucacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ggcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX25814

<400> 39958

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39959
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25816

<400> 39959
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25818

<400> 39960
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccaucaaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX25824

<400> 39961
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug guuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggauca 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uagaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 39962
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33420

<400> 39962
augaaaguaa aacuacuggu ccuguuaugu auauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39963
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33453

<400> 39963
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug acccaucuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaggac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39964
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX33464

<400> 39964
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39965
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33475

<400> 39965

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39966
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33486

<400> 39966
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39967
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33497

<400> 39967
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39968
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33508

<400> 39968
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39969
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33519

<400> 39969
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39970
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33541

<400> 39970
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccagaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca agagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacaga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39971
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 39971
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugacugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39972
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX33585

<400> 39972
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39973
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 39973
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1140

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39974
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX33618

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39975
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 39975
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39976
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX33640

<400> 39976

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39977
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX33836

<400> 39977
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcuggugcag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauauuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33880

<400> 39978
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaaugguag augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39979
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33913

<400> 39979
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aaacucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaaaagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagguaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuugaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39980
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33924

<400> 39980
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aguccugaga augggacaug uuacccaggg cauuucgccg acuaugagga acuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccgcaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgcccaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaaaaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agagucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 39981
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33957

<400> 39981
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaguu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39982
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33968

<400> 39982
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug caugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39983
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33979

<400> 39983

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaauggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39984
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX33990

<400> 39984
augaagacua ucauugcuuu gagcuacauu cuauaucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca agacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagagc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

agguguaaca uuugcauuug a 1701

<210> 39985
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34001

<400> 39985
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu aggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaggccuac agcaacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cagugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acucacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aacaucccca gcagaauaag caucuauugg acaauaguaa aaccuggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaaug cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaga augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accguuucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39986
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34012

<400> 39986
augaagacua ucauugcuuu gagcuacauu cuauaucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaaga 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

agguguaaca uuugcauuug a 1701

<210> 39987
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 39987
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcuuuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaga cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39988
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34044

<400> 39988
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39989
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34089

<400> 39989
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ggaauugaca acagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuagu 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccuaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39990
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34123

<400> 39990
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggac 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39991
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34134

<400> 39991
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39992
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34145

<400> 39992
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39993
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34156

<400> 39993
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augccacuga gcugguucag 180

aguuccucaa caggugaaau augcggcagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39994
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX34178

<400> 39994

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuauu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug cauaacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39995
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34188

<400> 39995
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaauugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39996
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34199

<400> 39996
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaauuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39997
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34221

<400> 39997
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugcg auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39998
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34243

<400> 39998
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cucgggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 39999
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34254

<400> 39999
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaauuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaauugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40000
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34265

<400> 40000
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgauagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca aaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40001
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34275

<400> 40001

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaagauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc auuauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40002
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34318

<400> 40002
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuuau acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gcaaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40003
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34329

<400> 40003
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gguuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga aggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40004
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34352

<400> 40004
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug cauaacucca 900

aauggaagca uucucaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40005
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34364

<400> 40005
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uucuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40006
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34375

<400> 40006
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uucuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40007
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34386

<400> 40007
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagua cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguua acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40008
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34407

<400> 40008
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguua acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40009
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34440

<400> 40009
augaaaguaa aacuacuggu ucuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gacuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagguaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40010
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<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AEX34462

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug auuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuacccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacggucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40011
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<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34473

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagcuccacu acaauugggu aauugcagug uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagua cacaaagugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacagag agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 40012
<211> 1698
<212> RNA
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<220>

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aguggguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40013
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34506

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggguccc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40014
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34517

<400> 40014
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40015
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34528

<400> 40015
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aguggguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40016
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34539

<400> 40016
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40017
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34550

<400> 40017
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggguсc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40018
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<220>
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hemagglutinin__InfluenzaA__AEX34561

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40019
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<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34572

<400> 40019

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggguccc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40020
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34583

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40021
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<212> RNA
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<220>
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aguggguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40022
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34605

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40023
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34616

<400> 40023
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggguccc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40024
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX34627

<400> 40024
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aguggguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggguccc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40025
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34638

<400> 40025
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40026
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34650

<400> 40026
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gugaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggaacc aaaggucccu cuaucauaca gaaaaugcuu augucucugu aguaucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accccaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auugaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggaua ugcugcagau 1140

caaaaaagca cacagaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aguauucuga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgauauacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40027
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34661

<400> 40027
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaagguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auucgaggca 780

aauggaaauc uaauagcacc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaagga 900

gcuauaaaca gcagccuucc uuuccagaau guacacccug ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug gcuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaaa aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca gcaaauugga gagaaggaug 1260

gaaaacuuaa auaagaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaac 1380

cuguaugaga aagugaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugc 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40028
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34672

<400> 40028
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugauaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc augauggggа aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40029
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34683

<400> 40029
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccuaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gauuuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40030
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX34757

<400> 40030

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggggg aagcaguuuu 480

uacaaaaauu ugcuauggcu gacgaggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca agguuaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40031
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34768

<400> 40031
augaaaguaa aacuacuggu ucuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aacccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga cagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaucu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagga 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40032
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34779

<400> 40032
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga acgcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac gccucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40033
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34790

<400> 40033
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcu gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40034
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34801

<400> 40034
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggagcaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu cuguaucuuc auuuaagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu cagaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcu gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40035
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34812

<400> 40035
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cuguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug gucacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agcuauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauugauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40036
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34834

<400> 40036
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gaauuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua accaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caaucuagag guuuguuugg agccauugcu gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40037
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34845

<400> 40037

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gguucccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaccaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga aggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40038
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34856

<400> 40038
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcu gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40039
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34867

<400> 40039
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu gcaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gguuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugauuu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggga aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga aggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40040
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34878

<400> 40040
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcu gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40041
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34889

<400> 40041
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gugaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugccu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40042
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34900

<400> 40042
augaaaguaa aacuacuggu ccuauuaugc acauuuacag cuacauaugc agacacaaua 60

uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcu gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg gucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu accacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggaguggaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40043
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34911

<400> 40043
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuucccag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uugggaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40044
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34922

<400> 40044
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaagaaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuugg auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40045
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34933

<400> 40045
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuuau acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40046
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34944

<400> 40046
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag gucuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40047
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34955

<400> 40047
augaaagcaa aacuacuggu ccuguuaugc accuuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga augggacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40048
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX34966

<400> 40048

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40049
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34977

<400> 40049
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40050
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34988

<400> 40050
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40051
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX34999

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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcu gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40052
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35010

<400> 40052
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40053
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35032

<400> 40053
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40054
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35043

<400> 40054
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40055
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35054

<400> 40055

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga auagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40056
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35065

<400> 40056
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugauc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu aguaucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugccca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40057
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35076

<400> 40057
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40058
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35087

<400> 40058
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcu gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40059
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35098

<400> 40059
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu aaugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacuauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40060
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35109

<400> 40060
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca accgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40061
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35120

<400> 40061
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaua ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu gugcuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucgagaa 720

ggaagaauca acuacuacug gacucugcuu gaaccugggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaaugaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40062
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35131

<400> 40062
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40063
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35142

<400> 40063
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40064
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35153

<400> 40064
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguauccgca ucaugcuccc auaaugggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaggagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaugacccu cuaccauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaggugag agaucaagaa 720

gggagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aguggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcaaucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcu gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg aucacaaaca aggugaauuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugagagaacu uuggauuucc augacuccaa ugugaagagu 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40065
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35164

<400> 40065
augaaaguaa aacuacuggu ccuguuaugc gcauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugucc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcggugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaag 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40066
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX35175

<400> 40066

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu cgaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaacagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auucgaggca 780

aauggaaauc uaauagcacc aagguuugcu uucgcacuga auagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugga ugugaugcga agugucaaac accucaagga 900

gcuauaaaca gcagccuucc uuuccagaau guacacccug ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug gcuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca gcaaauugga gagaaggaug 1260

gaaaacuuaa auaagaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaac 1380

cuguaugaga aagugaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugc 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40067
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35186

<400> 40067
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagguaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40068
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35197

<400> 40068
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagguaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40069
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35208

<400> 40069
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uauuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35219

<400> 40070
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuggggcauc augcaguacc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac aguaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu cagaauguaa acaggaucac auaugggggcc 960

uguccccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua agagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgggaaaa cgaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaga augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40071
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35230

<400> 40071
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggguсc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35241

<400> 40072
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaucuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccauuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaggac aaagaagcaa cuuagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40073
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35263

<400> 40073

augaaaguaa aacuacuggu ccuguuaugu auauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggguccc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40074
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35274

<400> 40074
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggu uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag agugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggguсc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca agagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccaggg guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

cagaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaguucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40075
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35285

<400> 40075
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40076
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35296

<400> 40076
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug ccugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40077
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35307

<400> 40077
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccauuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugauca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg aucucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaggac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugua uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35318

<400> 40078
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug ccugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40079
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35329

<400> 40079
augaagacua ucauugcuuu gagcuacuuu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccauuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaggac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35340

<400> 40080
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccauuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaggac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40081
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35351

<400> 40081
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35362

<400> 40082
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40083
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35373

<400> 40083
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX35384

<400> 40084

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

agcgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagaac caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagagguau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40085
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35395

<400> 40085
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

aaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg gagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35406

<400> 40086
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40087
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35417

<400> 40087
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35428

<400> 40088
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagauccgau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucagggag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuuu 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu gacaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40089
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35439

<400> 40089
augaaaguaa aacuacuggu ucuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauuugcu uucgcauuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auugaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggaua ugcugcagau 1140

caaaaaagca cacagaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aguauucuga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgauauacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35450

<400> 40090
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagauccaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ugagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca uaaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40091
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35461

<400> 40091

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcuggugcag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35472

<400> 40092
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaccuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40093
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35483

<400> 40093
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcuggugcag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35494

<400> 40094
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gccuccaaaa uaagaaaugg 300

gaucuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaauggg acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucaaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40095
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35505

<400> 40095
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35516

<400> 40096
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gccuccaaaa uaagaaaugg 300

gaucuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaauggg acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucaaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40097
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccauuuaa aauucaaaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugauc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuuugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40098
<211> 1701
<212> RNA
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hemagglutinin__InfluenzaA__AEX35549

<400> 40098
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggauccaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaaa aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu gacaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaagaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca uaaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgauucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40099
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40099
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccauuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggggguacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auugcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugugggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugauc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuaggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40100
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35571

<400> 40100
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gagguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40101
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35582

<400> 40101
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacgca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaga ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX35593

<400> 40102

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcuggugcag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcaccccuu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40103
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35604

<400> 40103
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaccuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX35615

<400> 40104
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguucuucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuga aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauauugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40105
<211> 1701
<212> RNA
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<220>
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<400> 40105
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40106
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cgggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucugau 480

aacaguuucu uuaguaaauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca gaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggcua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40107
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40107
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36102

<400> 40108
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ggaaauaaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40109
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36113

<400> 40109

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacagcuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagcg 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuucauuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36124

<400> 40110
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40111
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36146

<400> 40111
augaagacua ucauugcuuu gagcuacauu cuaugucugg uucucgcuca aaaacuuccu 60

ggagaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36168

<400> 40112
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucugau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acaucugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu aggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauaaguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuaa gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 40113
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36179

<400> 40113
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40114
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36190

<400> 40114
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaauugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40115
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36201

<400> 40115
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40116
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36212

<400> 40116
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa uaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40117
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36223

<400> 40117
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggac 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40118
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36234

<400> 40118
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cgggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucugau 480

aacaguuucu uuaguaaauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca gaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguugucuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggcua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40119
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36245

<400> 40119
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaaaccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40120
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX36256

<400> 40120

augaagacua ucauugcuuu gagcuauauu cuaugucugg uuuucacuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40121
<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40122
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa uaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuacagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga aguuaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaaaaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuag caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguaaauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaagauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uccccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugaacuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX36311

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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu aggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40125
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX36322

<400> 40125
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccu uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa uaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agccgcaauc gaucaaauca augggaagcu gaauagguug 1200

auugggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36333

<400> 40126
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ggaauugaca acagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augaugcaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40127
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36344

<400> 40127

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaugccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu aggggcuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagaaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40128
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX36366

<400> 40128
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuucc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccagauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug cauaacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg aucuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40129
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40129
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ggaaaugaca acagcacggc aacgcugugc cucgggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40130
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug ccugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uuccuaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40131
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36399

<400> 40131
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaacu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuauu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug cauaacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40132
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40132
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40133
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36421

<400> 40133
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40134
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36432

<400> 40134
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40135
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36443

<400> 40135
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gauaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40136
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEX36454

<400> 40136
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gauaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40137
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36465

<400> 40137
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40138
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEX36476

<400> 40138

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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugcg auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40139
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36487

<400> 40139
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40140
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36498

<400> 40140
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ggaauugaca acagcacggc aacguugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40141
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36509

<400> 40141
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40142
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36520

<400> 40142
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40143
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36531

<400> 40143
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugauaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuua aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40144
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36542

<400> 40144
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40145
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36553

<400> 40145

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40146
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36564

<400> 40146
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40147
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36575

<400> 40147
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaauggca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguua acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagauaucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36586

<400> 40148
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acaacacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguua acagaaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuaa agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40149
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36597

<400> 40149
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagagugagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguua acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36608

<400> 40150
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu auccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaagauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ugagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca aacgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40151
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX36619

<400> 40151
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX63617

<400> 40152
auggaagcaa aauuauuugu auuauucugu gcauucacug cacuaaaagc ugacaccauu 60

uguguaggcu accaugccaa caauuccaca gacacugucg acacaauacu ggagaaaaau 120

gugacuguua cccauucagu uaauuuacug gaaaacagcc auaaugggaa acucugcagc 180

cugaauggaa agauccccuu acaacugggg aacugcaacg uagcaggaug gauccuuggc 240

aacccaaaau gugacuugcu gcucacagcg aauucguggu cuuacauaau agagacuuca 300

aauucaaaaa auggagcaug cuaccccgga gaauucgcug auuaugaaga guuaaaggag 360

cagcugagua caguuucuuc auuugaaaga uuugaaauuu ucccaaaggc aaccucaugg 420

ccaaaccaug auaccaccag agguaccaca guugcaugcu cccacucugg agccaacagc 480

uuuuaucgga auuuacuaug gauaguaaag aaaggaaacu ccuauccuaa gcucagcaag 540

ucauacacaa acaauaaggg aaaggaagug cuuguaauuu ggggagugca ccacccuccg 600

accgacagug uccaacaaac ccucuaccag aauaaucaua cauauguuuc aguuggauca 660

ucaaaauacu acaaaagguu cacaccagaa auaguagcaa gaccuaaagu cagagaacaa 720

gcaggcagaa ugaauuauua cuggacacug uuagaucaag gggacaccau aacuuuugaa 780

gccacuggga auuuaauagc accauggcac gcauuugcau ugaaaaaagg cucuaguucu 840

ggaauuauga ggucggaugc ucagguucac aauugcacua caaagugcca aacuccccau 900

ggggccuuga aaggcaaucu uccuuuucag aauguacauc ccgucacuau uggagaaugc 960

cccaaauaug uuaaaagcac ccaacugaga auggcaacag gacuaaggaa uauccccucu 1020

auucaaucca gaggacuuuu cggggcaauu gccggauuca uugaaggagg auggacagga 1080

augguagaug gaugguaugg auaucaccau cgaaaugagc agggaucugg uuacgcagca 1140

gaucagaaaa gcacacaaau ugcaauugau gggauaagua acaaagugaa cucagugauu 1200

gaaaaaauga acauucaauu uacuucagug ggcaaggagu ucaauagucu agagaaaagg 1260

auggaaaauu ugaauaagaa gguugaugau gggguuuuugg auguauggac auauaacgcu 1320

gaguugcuca uuuuacucga gaaugaaagg acucuagauu uccaugaccu uaacguaaaa 1380

aauuuauaug aaaaggucaa aucacaacua aggaacaaug cuaaggaaau cggaaauggc 1440

ugcuuugagu ucuaucacaa augugauaau gagugcaugg aaagcguaaa gaauggcaca 1500

uacaauuauc ucaaauauuc agaagaaucc aaguugaaua gggaggaaau agauggugug 1560

aaacuagaau caaugggaau ucaccagauu uuggcgaucu acuccacagu cgccaguucc 1620

cuggucuuau uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucauug 1680

caaugcagag uaugcauuua a 1701

<210> 40153
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEX92873

<400> 40153
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 40154
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69088

<400> 40154
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40155
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69098

<400> 40155
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua ccaagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40156
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEY69120

<400> 40156

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40157
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69131

<400> 40157
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69153

<400> 40158
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40159
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69164

<400> 40159
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40160
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69175

<400> 40160
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40161
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69186

<400> 40161
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69197

<400> 40162
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuaccga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacuguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caagugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40163
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69208

<400> 40163

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuaccga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacuguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caagugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40164
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69219

<400> 40164
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40165
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69258

<400> 40165
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40166
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69269

<400> 40166
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40167
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69291

<400> 40167
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40168
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69302

<400> 40168
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40169
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69313

<400> 40169
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40170
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69785

<400> 40170
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40171
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69807

<400> 40171
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaauuacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69818

<400> 40172
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca ucugcauuug a 1701

<210> 40173
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69829

<400> 40173
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69840

<400> 40174
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40175
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69851

<400> 40175
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg gaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40176
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEY69873

<400> 40176
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40177
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEY69884

<400> 40177
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug ccugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40178
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40178
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40179
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69906

<400> 40179
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40180
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69917

<400> 40180
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40181
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69939

<400> 40181

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggguc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40182
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69950

<400> 40182
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggguc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40183
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AEY69961

<400> 40183
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggguc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40184
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY69994

<400> 40184
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40185
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70005

<400> 40185
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40186
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70016

<400> 40186
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40187
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70256

<400> 40187
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac ggcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40188
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70267

<400> 40188
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40189
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70278

<400> 40189
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40190
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70289

<400> 40190
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40191
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70300

<400> 40191
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40192
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AEY70311

<400> 40192

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40193
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70333

<400> 40193
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40194
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70344

<400> 40194
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40195
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70355

<400> 40195
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40196
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70365

<400> 40196
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gauuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40197
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AEY70376

<400> 40197
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40198
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB18656

<400> 40198
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40199
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB40597

<400> 40199

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40200
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB40598

<400> 40200
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40201
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB40599

<400> 40201
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acuugaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40202
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB40600

<400> 40202
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40203
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB40601

<400> 40203
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccgagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40204
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB40602

<400> 40204
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40205
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB40603

<400> 40205
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40206
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB40604

<400> 40206
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gauaaagagu ucaaccaccu ggaaaaaaga 1260

auagggaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40207
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70138

<400> 40207
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40208
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70145

<400> 40208
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40209
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70154

<400> 40209
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40210
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFB70156

<400> 40210

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40211
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70158

<400> 40211
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40212
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70160

<400> 40212
augaaggcaa uacuaguagu ucugcuguau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40213
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70162

<400> 40213
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40214
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70167

<400> 40214
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauga gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40215
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70177

<400> 40215
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccguu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40216
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70187

<400> 40216
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40217
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70197

<400> 40217

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40218
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70207

<400> 40218
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40219
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70217

<400> 40219
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40220
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70227

<400> 40220
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40221
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70247

<400> 40221
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaggaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40222
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70257

<400> 40222
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucgucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40223
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70267

<400> 40223
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40224
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70277

<400> 40224
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40225
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70287

<400> 40225
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40226
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70297

<400> 40226
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40227
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70307

<400> 40227
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40228
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70317

<400> 40228
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40229
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70327

<400> 40229
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu gggaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40230
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB70337

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40231
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70347

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40232
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70367

<400> 40232
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40233
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB70377

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40234
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70387

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccuaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40235
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70397

<400> 40235

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40236
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB70407

<400> 40236
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40237
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77618

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaacu 600

accacuggug accaacaaag ucucuaucag aaugcagaug gauauguuuu ugugggggaca 660

acaagauaca gcaagaaguu caaaccggaa auaggaauaa gacccaaggu gaaggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gacugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguaaugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40238
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77619

<400> 40238
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40239
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77620

<400> 40239
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40240
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77621

<400> 40240
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugacgau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaauggaacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40241
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77622

<400> 40241
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40242
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77623

<400> 40242
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacagag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40243
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77624

<400> 40243
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu ggagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac auacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40244
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77625

<400> 40244
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40245
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77627

<400> 40245
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauug 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucuccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40246
<211> 1701
<212> RNA
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<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFB77628

<400> 40246

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40247
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB77629

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac auacaaugaa 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40248
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB77630

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug agucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40249
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB77631

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau ucuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40250
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77632

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu caccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguaaaa uauguauuua a 1701

<210> 40251
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77633

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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaagg 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaaa aaaccaauua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgcccauca aaaaugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40252
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB77634

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagaaaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca ucgaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugagaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40253
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77635

<400> 40253

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcccauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40254
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77636

<400> 40254
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ggcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguaaugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40255
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77637

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagg gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40256
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77638

<400> 40256
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uucuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau ucuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40257
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77639

<400> 40257
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40258
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77640

<400> 40258
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agagaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcag accaacaagg ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa accuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau ucuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40259
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77641

<400> 40259
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu ugccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40260
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77642

<400> 40260
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugagaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguacg aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<212> RNA
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hemagglutinin__InfluenzaA__AFB77643

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagcc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugagaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaauggaacu 1500

uaugacgaca caaaagacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 40262
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB77691

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gaaaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacu cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aaacgcgccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcagagcugc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaccaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugcaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 40263
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77692

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaccg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

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<210> 40264
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFB77693

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40265
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB77694

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucgcgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag gaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40266
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFB77695

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag gaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40267
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFB78126

<400> 40267
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcaguguc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucaggaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcaua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagccc cuggguaagg 720

ggugccucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaacc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40268
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFC34056

<400> 40268
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ggaaaugaca acagcacugc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagaacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagaacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggccg gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaca cgaaguguca aacaccccug 900

ggagcuauaa acagcagucu cccuuaccag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaggagugc caaauugagg augguuacag gacuaaggaa cacuccgucc 1020

auucaaucca gaggucuauu uggagccauu gccgguuuua uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcagcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cacuguuauc 1200

gagaaaauga acauucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuag uucuacugga aaaugaaagg acucuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau cggaaaugga 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaaguguaag aaaugggacu 1500

uaugauuauc ccaaauauuc agaagaguca aaguugaaca gggaaaaggu agauggagug 1560

aaauuggaau caauggggau cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa uggaucuuug 1680

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<210> 40271
<211> 1698
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hemagglutinin__InfluenzaA__AFD32427

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuaugugau 180

cuagauggag ugaagccucu aauuuugaga gauuguagcg uagcuggaug gcuccucgga 240

aacccaaugu gugacgaauu caucaaugug ccggaauggu cuuacauagu ggagaaggcc 300

aauccaguca augaccucug uuacccaggg gauuucaaug acuaugaaga auugaaacac 360

cuauugagca gaauaaacca uuuugagaaa auucagauca uccccaaaag uucuuggucc 420

agucaugaag ccucauuagg ggugagcuca gcauguccau accagggaaa guccuccuuu 480

uucagaaaug ugguauggcu uaucaaaaag aacaguacau acccaacaau aaagaggagc 540

uacaauaaua ccaaccaaga agaucuuuug guacuguggg ggauucacca uccuaaugau 600

gcggcagagc agacaaagcu cuaucaaaac ccaaccaccu auauuuccgu ugggacauca 660

acacuaaacc agagauuggu accaagaaua gcuacuagau ccaaaguaaa cgggcaaagu 720

ggaaggaugg aguucuucug gacaauuuua aagccgaaug augcaaucaa cuucgagagu 780

aauggaaauu ucauugcucc agaauaugca uacaaaauug ucaagaaagg ggacucaaca 840

auuaugaaaa gugaauugga auaugguaac uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacac uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgaucua gauggaguga agccucuaau uuugagagau 240

uguagcguag cuggauggcu ccucggaaac ccaaugugug acgaauucau caaugugccg 300

gaaugucuu acauagugga gaaggccaau ccagucaaug accucuguua cccaggggau 360

uucaaugacu augaagaauu gaaacaccua uugagcagaa uaaaccauuu ugagaaaauu 420

cagaucaucc ccaaaaguuc uugguccagu caugaagccu cauuaggggu gagcucagca 480

uguccauacc agggaaaguc cuccuuuuuc agaaaugugg uauggcuuau caaaaagaac 540

aguacauacc caacaauaaa gaggagcuac aauaauacca accaagaaga ucuuuuggua 600

cugugggggga uucaccaucc uaaugaugcg gcagagcaga caaagcucua ucaaaaccca 660

accaccuaua uuuccguugg gacaucaaca cuaaaccaga gauugguacc aagaauagcu 720

acuagaucca aaguaaacgg gcaaagugga aggauggagu ucuucuggac aauuuuaaag 780

ccgaaugaug caaucaacuu cgagaguaau ggaaauuuca uugcuccaga auaugcauac 840

aaaauuguca agaaagggga cucaacaauu augaaaagug aauuggaaua ugguaacugc 900

aauucugaau gcaucacucc aaauggaagc auucccaaug acaaaccauu ccaaaaugua 960

aacaggauca cauacggggc cugucccaga uauguuaagc aaaacacucu gaaauuggca 1020

acagggaugc gaaauguacc agagaaacaa acuagaggca uauuuggcgc aaucgcgggu 1080

uucauagaaa augguuggga gggaauggug gaugguuggu acgguuucag gcaucaaaau 1140

ucugagggaa gaggacaagc agcagaucuc aaaagcacuc aagcagcaau cgaucaaauc 1200

aaugggaagc ugaauagauu gaucgggaaa accaacgaga aauuccauca gauugaaaaa 1260

gaauucucag aagucgaagg gagaauucag gaccuugaga aauauguuga ggacacuaaa 1320

auagaucucu ggucauacaa cgcggagcuu cuuguugccc uggagaacca acauacaauu 1380

gaucuaacug acucagaaau gaacaaacug uuugaaaaaa caaagaagca acugagggaa 1440

aaugcugagg auaugggcaa ugguuguuuc aaaauauacc acaaauguga caaugccugc 1500

auaggaucaa ucagaaaugg aacuuaugac cacgauguau acagagauga agcauuaaac 1560

aaccgguuuc agaucaaggg aguugagcug aagucagggu acaaagauug gauccuaugg 1620

auuuccuuug ccauaucaug uuuuuugcuu uguguugcuu uguuggggguu caucaugugg 1680

gccugccaaa aaggcaacau uaggugcaac auuugcauuu ga 1722

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<211> 1704
<212> RNA
<213> Artificial Sequence

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcacucaa gggaaaaggc caacagaucu gggacaaugu 240

ggacuucuag gaacccuaau aggaccuccc caaugcgauc aauuucugga guuugacgcu 300

gauuugauaa uugaacgaag agaaggaacc gaugugugcu aucccgggaa guucacaaau 360

gaagaaucac ugaggcagau ccuucgaggg ucaggaggaa uugauaagga gucaaugggu 420

uucaccuaua guggaauaag aaccaauggg gcaacgagug ccuguagaag aucagguucu 480

ucuuucuaug cggagaugaa gugguuacug ucgaauucag acaaugcgga auuuccccaa 540

augacuaagu cguauagaaa ucccaggaac aaaccagcuc ugauaauuug gggagugcau 600

cacucuggau cggcuacuga gcagaccaaa cucuauggaa guggaaacaa guugauaaca 660

guaggaagcu cgaaauacca gcaaucauuc acuccaaguc cgggagcacg gccacaggug 720

aauggacaau caggaaggau ugauuuucac uggcuacucc uugaucccaa ugacacagug 780

accuucacuu ucaauggggc auucauagcu ccugacaggg caaguuucuu uagaggagaa 840

ucgcuaggag uccagaguga uguuccuuug gauucugguu gcaauucuga augcaucacu 900

ccaaauggaa gcauucccaa ugacaaacca uuccaaaaug uaaacaggau cacauacggg 960

gccuguccca gauauguuaa gcaaaacacu cugaaauugg caacagggau gcgaaaugua 1020

ccagagaaac aaacuagagg cauauuuggc gcaaucgcgg guuucauaga aaaugguugg 1080

gagggaaugg uggaugguug guacgguuuc aggcaucaaa auucugaggg aagaggacaa 1140

gcagcagauc ucaaaagcac ucaagcagca aucgaucaaa ucaaugggaa gcugaauaga 1200

uugaucggga aaaccaacga gaaauuccau cagauugaaa aagaauucuc agaagucgaa 1260

gggagaauuc aggaccuuga gaaauauguu gaggacacua aaauagaucu cuggucauac 1320

aacgcggagc uucuuguugc ccuggagaac caacauacaa uugaucuaac ugacucagaa 1380

augaacaaac uguuugaaaa aacaaagaag caacugaggg aaaaugcuga ggauaugggc 1440

aaugguuguu ucaaaauaua ccacaaaugu gacaaugccu gcauaggauc aaucagaaau 1500

ggaacuuaug accacgaugu auacagagau gaagcauuaa acaaccgguu ucagaucaag 1560

ggaguugagc ugaagucagg guacaaagau uggauccuau ggauuuccuu ugccauauca 1620

uguuuuuugc uuuguguugc uuuguuggggg uucaucaugu gggccugcca aaaaggcaac 1680

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<210> 40274
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

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ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccagaa aggcaacauu 1680

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<210> 40275
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucaau aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguacca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40276
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40277
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaggag 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 40279
<211> 1701
<212> RNA
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucua cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggagcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca agagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40281
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFD63648

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ggaaaugaca acagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40282
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag uaucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 40283
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaguacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40284
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40284
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguccccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaaua ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaga cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga aaucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40285
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caaguggaau augcgacagu ccuuaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccaaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucua cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa caaacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca uaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucua cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca uaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguccccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaga cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucgg auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga aaucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40289
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40289

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40290
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40290
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca uaucaaaagu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40291
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40291
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40292
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40292
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40293
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40293
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cugguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag uaaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu ucaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggauuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40294
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFD63813

<400> 40294
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcucac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua uagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40295
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40295
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40296
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD63846

<400> 40296
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gauuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40297
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD63857

<400> 40297
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gggaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc aaggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaggcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40298
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD63868

<400> 40298
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucagg caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugagaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40299
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD63890

<400> 40299
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40300
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD63901

<400> 40300
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40301
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagguaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40302
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40302
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40303
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40303
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg aaagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaguaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugauc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40304
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFD63945

<400> 40304
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuaa aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40305
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD63956

<400> 40305
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40306
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD63967

<400> 40306
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40307
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD63989

<400> 40307

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu aaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40308
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64000

<400> 40308
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40309
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40309
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caccaggaaa aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcgaca uuugcauuug a 1701

<210> 40310
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64022

<400> 40310
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuaa aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40311
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64033

<400> 40311
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40312
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64044

<400> 40312
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ggaaaugaaa acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguccccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaagua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaga cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga aaucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40313
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64055

<400> 40313
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40314
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64066

<400> 40314
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ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaaug cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaaaauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40315
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64077

<400> 40315
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggauaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40316
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64088

<400> 40316
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca aucgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40317
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64099

<400> 40317
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40318
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFD64110

<400> 40318

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40319
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64121

<400> 40319
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40320
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64132

<400> 40320
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40321
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64143

<400> 40321
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40322
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64154

<400> 40322
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40323
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64179

<400> 40323
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag uaaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu ucaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccaaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccaaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40325
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40325

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40326
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagcc 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40327
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccauuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgg acagugacca aaucagacua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auauuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa uauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40328
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40328
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaaucaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40329
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64326

<400> 40329
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40330
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFD64337

<400> 40330
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40331
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64348

<400> 40331
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40332
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64359

<400> 40332
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40333
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64370

<400> 40333
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40334
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64381

<400> 40334
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40335
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64392

<400> 40335
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40336
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFD64403

<400> 40336

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40337
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64414

<400> 40337
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40338
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64425

<400> 40338
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccgaau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc auaaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40339
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64436

<400> 40339
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu aaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40340
<211> 1701
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca aucgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40341
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguaca aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40342
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugagau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg aucuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40343
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa guuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40344
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagagua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40345
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40345
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugaggggag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40346
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40347
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64807

<400> 40347
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

gauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccccuu ggcaaaugcc auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauaugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc ccgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcaccca agcagcaacc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<212> RNA
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc ccgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacgggacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40352
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<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccccuu ggcaaaugca uuucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40353
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cgggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua ccccgcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca uuucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc ccgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFD64820

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccuu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40355
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacgggacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40356
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64823

<400> 40356
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugagau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcagaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg aucuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40357
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40357
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacgauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40358
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40358
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40359
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64827

<400> 40359
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40360
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64828

<400> 40360
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu cccaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc ccgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40361
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD64830

<400> 40361

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacgggacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagauccaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40362
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98095

<400> 40362
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40363
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98106

<400> 40363
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca gaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 40364
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98128

<400> 40364
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauauuccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40365
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98139

<400> 40365
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40366
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98161

<400> 40366
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40367
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98172

<400> 40367
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaacaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg guccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40368
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98183

<400> 40368
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguacuu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40369
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98194

<400> 40369
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40370
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98205

<400> 40370
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40371
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98215

<400> 40371
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaga caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40372
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFD98226

<400> 40372

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacca ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca aucgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40373
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98237

<400> 40373
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuucugcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40374
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98248

<400> 40374
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agagguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40375
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98259

<400> 40375
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugcaggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40376
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98270

<400> 40376
augaaggcaa uacuaguagu ucugcuauau acauuuguaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaauac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40377
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98280

<400> 40377
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugauucacu cuccacagca agaucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaauguuaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40378
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98290

<400> 40378
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacgggacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40379
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFD98310

<400> 40379

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguagca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40380
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98320

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuccua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacu gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40381
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98340

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40382
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98351

<400> 40382
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaacaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40383
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFD98362

<400> 40383
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ggaaaugaca acagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaggccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

gucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagagaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcucu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98373

<400> 40384
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40385
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98384

<400> 40385
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa uaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40386
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98395

<400> 40386
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggagaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggagcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40387
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 40388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40389
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuuac cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40390
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFD98439

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98449

<400> 40391
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg gaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaauu cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag cauauauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa uggaugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98460

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguaaauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaagca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98471

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aagcucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98481

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaguaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40395
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98492

<400> 40395
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98503

<400> 40396
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucug caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuaaaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40397
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98514

<400> 40397

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggaacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguugaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccau 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40399
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98558

<400> 40399
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40400
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98569

<400> 40400
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacggag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca cgaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40401
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFD98580

<400> 40401
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFE02942

<400> 40402
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguguggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggacagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFE18688

<400> 40403
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFE47624

<400> 40404
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caccagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacugca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugucuu gcugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40405
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFE47635

<400> 40405
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaaguaacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaaaacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguug 1200

auugagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auaugucgag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu acugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF18506

<400> 40406
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40407
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57124

<400> 40407
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuaccgcug accaacaacg ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucggauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcaggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57128

<400> 40408
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacauucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaccgcug accaacaaag uaucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucggauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuguugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40409
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57132

<400> 40409
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguu cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag uaucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugagacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40410
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57136

<400> 40410
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagucuac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40411
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57144

<400> 40411
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugaug accaacaaag ucucuaucag aaugaagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57148

<400> 40412
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugaug accaacaaag ucucuaucag aaugaagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40413
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57160

<400> 40413
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcgaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugaagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57164

<400> 40414
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40415
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57168

<400> 40415

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57172

<400> 40416
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugaagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40417
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57176

<400> 40417
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57184

<400> 40418
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauaccaaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40419
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF57188

<400> 40419
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugaug accaacaaag ucucuaucag aaugaagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40420
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFF60787

<400> 40420
auggagaaaa uagugcuucu uuuugcaaua gucagucuug uuaaaaguga ucagauuugc 60

auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguccu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuaggggu gagcucagca uguccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagauccg aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

agaagaagaa aaaagagagg auuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccauagca augagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa caacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggaacugggu 1440

aacgguuguu ucgaguucua ucauaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaauuuac caaauacugu caauuuauuc uacaguggcg 1620

aguucccuag cacuggcaau caugguagcu ggucuauccu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 40421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG29042

<400> 40421
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacauuu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg ugcuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG29044

<400> 40422
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40423
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31060

<400> 40423
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31070

<400> 40424
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40425
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31080

<400> 40425
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaagg acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31100

<400> 40426
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acuugaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40427
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31110

<400> 40427
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31120

<400> 40428
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40429
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31130

<400> 40429
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31140

<400> 40430
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40431
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31150

<400> 40431
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31160

<400> 40432
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40433
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31170

<400> 40433

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcuacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31180

<400> 40434
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcuacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40435
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31190

<400> 40435
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31200

<400> 40436
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40437
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31210

<400> 40437
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31220

<400> 40438
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31230

<400> 40439
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31240

<400> 40440
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40441
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31250

<400> 40441
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31260

<400> 40442
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40443
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31270

<400> 40443
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG31280

<400> 40444

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40445
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31290

<400> 40445
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31300

<400> 40446
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauaaauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31310

<400> 40447
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31323

<400> 40448
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31333

<400> 40449
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31343

<400> 40450
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40451
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31353

<400> 40451

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31363

<400> 40452
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40453
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31376

<400> 40453
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31386

<400> 40454
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40455
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31396

<400> 40455
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31406

<400> 40456
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40457
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31416

<400> 40457
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31426

<400> 40458
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40459
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31436

<400> 40459
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31446

<400> 40460
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31456

<400> 40461
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31466

<400> 40462
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40463
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31486

<400> 40463
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31496

<400> 40464
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31506

<400> 40465
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31516

<400> 40466
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31526

<400> 40467
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccuaaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcuaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31536

<400> 40468
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31546

<400> 40469

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31556

<400> 40470
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31566

<400> 40471
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31586

<400> 40472
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40473
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31596

<400> 40473
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31606

<400> 40474
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40475
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31616

<400> 40475
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31626

<400> 40476
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40477
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31636

<400> 40477
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31646

<400> 40478
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG31656

<400> 40479
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga guacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG31666

<400> 40480

augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga guacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71865

<400> 40481
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

aucgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcaccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggugca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggaacuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71876

<400> 40482
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaga ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcaggcu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71898

<400> 40483
augaagacca ucauugcuuu gagcuaccuu uucugucugg cuuucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuccaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga uguaccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuac cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugucaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugug uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71920

<400> 40484
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acaguacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag acgcucuauu gggggacccu cauugugaug uuuuccaaga ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aauugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcaggcu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucuga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcagagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71931

<400> 40485
augaagacca ucauugcuuu gagcuacauu uucugucugg uuaucggcca agaccuucca 60

ggaaaugaaa acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug guuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

aucgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaacaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaauagggua 1200

auugagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug aucugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71942

<400> 40486
augaagacca ucauugcuuu gagcuacauu uucuaucugg cucucagcca agaccuucca 60

ggaaaugaca acagcaaagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagacu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauggacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuagaucacu aguugccucg ucaggcacuc uggaguuuau uacugagggu 420

uucacuugga cugaggucac ucagaauggg ggaagcauug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagaacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccug uauguucaaa caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gauccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga uaaacccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaaau auguuaagca aaacacccug aaguuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcaggcu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauu gaccaaauca auggaaaauu gaacaggaua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaagga 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucuaug gucuuacaau 1320

gcagagcuuc uugucgcucu ggagaaucaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aagaaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca acagguuuca aaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71953

<400> 40487

augaagacca ucauugcuuu gagcuacauu uucugucugg uucucggcca agaccuucca 60

ggaaaugaca aaagcacagc aacgcugugc cugggacacc augcagugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguaggcu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguacaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguccgucua gcagaauaag caucuauugg acaacaguua aaccgggaga cauacugaua 780

aucaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg aacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggugccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggggca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggagca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggggguc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71975

<400> 40488
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agauuuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccaggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG71996

<400> 40489
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca aaacuuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augccacuga gcugguucag 180

aguuccucaa cgggaaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cugggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

aucgguuuuu ucaguagacu gaacugguug uacaaaucag gaaacacaua uccagugcug 540

aacgugagua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagca augggaacuu aauugcuccu cgggguuacu ucaaaaugcg cacuggaaaa 840

agcucaauaa ugaggucaga ugcaucuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauaggaua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuggguuuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72007

<400> 40490
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggccg agacuuucca 60

agaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaauggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggggaaaau augcaauaau ccucaucgaa uccucgaugg aauggacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gccuucaaaa ugggacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucuggcacuc uggaguuuau caaugaaggc 420

uucacuugga cugggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaaacacaua uccaguacug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagacca aaccagccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaauaucg ggccuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuguua 780

auuaauagua auggaaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

ugucccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca auggaaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aguucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca cagaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40491
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72029

<400> 40491
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucggcca aaaccuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aauugccucg ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aacaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca gaccauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu agggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72040

<400> 40492
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaccuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgga uccuugaugg gaaaaacugc 240

acacugguag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaagc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag aggaucugau 480

aacaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagcc 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa aacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

ggcugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40493
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72051

<400> 40493
augaagacua ucauugcuuu aagcuacauu uucugucugg uuuucgccca aaaccuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugguag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaagc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aacaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaaaccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacugcua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauaca caaugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaagu acguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucgaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uucuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72085

<400> 40494
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga uuggagucac ucagaguggg ggaagcugug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aacaaaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ucgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

uguccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40495
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72107

<400> 40495
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca ucaggcaccc uggaguuuau caaugaagaa 420

uucaauugga cuggagucac ucagaauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug caugaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcagauuu gacaaauugu acauuuggggg gguucaccac 600

ccuagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccagca aacuguaauc ccgaauaucg ggccuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggggga cauacuguug 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauaca cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucua aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aagaaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcaguaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuauuuu gcugggauuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72118

<400> 40496
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aauuccucaa cagguagaau augcaacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacuggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacccca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguaccg 1020

gagagacaaa cuaggggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72129

<400> 40497
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg auagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacugugauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guggaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauagcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggca 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG72140

<400> 40498

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag cauuagggag agucacaguc 660

ucaaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauaa caaacccuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcagagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72151

<400> 40499
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72184

<400> 40500
augaagacua ucauugcuuu gagcuacauc uuaugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaauuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg aaagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu agggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

auagagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72195

<400> 40501
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72206

<400> 40502
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaaaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauuggcug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cugggugagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40503
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72217

<400> 40503
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaguagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagauauua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauuug auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagagcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
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<220>
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cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccacaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaucuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40506
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggugca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcuaugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguucuucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaauuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca caggaaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga uguacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua ugguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguggaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaua cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40509
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg agaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaucugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaua cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugaacuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40511
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72383

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG72394

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

gcuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucagucca guggaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuucaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40513
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72405

<400> 40513
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucacagaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu aauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuc gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca caggaaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaaccga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72449

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcuacagu ccucaccgaa uccuugaugg aaacaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aaagguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucaggggg agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaguaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72460

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccug uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggccugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

aguucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucagaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG72504

<400> 40516

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa uuaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72515

<400> 40517
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccccaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaagaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caacgaaaac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguccgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccggauaucg gguauagacc augguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuucug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagcu 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaagcu gaauagguua 1200

gucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auucuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72526

<400> 40518
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaucac 600

ccgagcacgg acagugacca gaccagccua uauguucgag caucagggag agucauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu uuaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggaa 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca aacagcaauc aaccaaauca acgggaaacu gaauagguug 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40519
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72581

<400> 40519
augaagacca ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaacg gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucaggggg agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguauagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uuuccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aguucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augccgagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaggugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugagcgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca ucaggcaccc uggaguuuac caaggaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca aaucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaacc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG72614

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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuauu cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacguggcua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72625

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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggagugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaaaagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40523
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG72636

<400> 40523

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacaaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauucaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cugggugagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caccaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuaggguuc aucauguggg caugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72658

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguua cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cugggugagg 720

ggcaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40525
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72680

<400> 40525
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguauaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aaugugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acaggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagggacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72691

<400> 40526
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuucaaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug ccugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaaugg caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aagaaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauauca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40527
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72713

<400> 40527
augaagauua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuucaaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucgggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuagcagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa uaaggucgga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auauggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcucc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aagaaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggaguugc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacguuacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguuagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugucugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca aucgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuucaaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

accgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagcaua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagauaucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aagaaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauauca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gaguucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagcaua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

gguaucucca gcagaauaag cauccauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40531
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

uuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagauccauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccagaa gaagccaaca aacuguaauc ccgaacaucg gaucuagacc cuggguaagg 720

ggugucucca gcggaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca aaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG72801

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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcaguguc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcaua uaugcucaau caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagucc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcgggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40533
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG72812

<400> 40533
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucuaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG72823

<400> 40534

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccauuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auauuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40535
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72834

<400> 40535
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauaca aagugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG72845

<400> 40536
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaaguaacua augcuacuga gcugguucag 180

aguuccucaa caaguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa gauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaauc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag cauccauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaaaacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguug 1200

auugagaaaa cgaaugagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auaugucgag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgag gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu acugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40537
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuac caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccauuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauaaguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaauuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aaaacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uuccuaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaccaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72922

<400> 40539
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ggagaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcauaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72933

<400> 40540
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcguaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG72955

<400> 40541

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caauaacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu aaauugguug acccacuuaa gauucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacacca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau caggaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98808

<400> 40542
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ggaaaugaca acagcacagc aacgcugugu cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag acgcucuauu gggggacccu cauugugaug uuuuucaaga ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcaggcu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40543
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98819

<400> 40543
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag acgcucuauu gggggacccu cauugugaug uuuuucaaga ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcaggcu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagagua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggagacaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcaucug a 1701

<210> 40544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98830

<400> 40544
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ggaaaugaca aaagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguacaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacugaua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggggca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug aucugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40545
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98841

<400> 40545
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ggaaaugaca aaagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga uguaccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguacaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacugaua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gguaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggggca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98852

<400> 40546
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggaacuc uggaguuuau caaugaaggc 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuuggggg gguucaccac 600

ccgagcacgg accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccaggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacgaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98863

<400> 40547
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gguaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cggcuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca gaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga aaucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98874

<400> 40548
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccaggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugucccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40549
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98885

<400> 40549
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gggaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacgggaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucu ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaacugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua cccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuuggggg gguucaccac 600

ccgagcacgg accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccaggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

uguccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98896

<400> 40550
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agacuuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuguu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcgcaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaaa caucagggag agucacaguc 660

uccacaaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98907

<400> 40551
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugac 480

ugcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aacggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG98918

<400> 40552

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugac 480

agagguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aacggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98929

<400> 40553
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguaaaau augcaacaau ccucaucgaa uccuggaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag aggaccugac 480

aucgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaauauug ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu augugaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98940

<400> 40554
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccc cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugac 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa agacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaga 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caggcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagagucaau cagaaauggg 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucagggua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98962

<400> 40555
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucgccca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

agcuccucaa cggguaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccuaauguug ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagagua 1200

aucgagaaga cgaacgagaa auuccaccaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augccgagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98973

<400> 40556
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agacuuucca 60

agaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaauggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuaauga acugguucag 180

aguuccucaa cggggaaaau augcaauaau ccucaucgaa uccucgaugg aauggacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gccuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucuggcacuc uggaguuuau caaugaaggc 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agagguuuuu ucaguagacu gaacugguug uacaaaucag gaaacacaua uccaguacug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagacca aaccagccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaauaucg ggccuagacc cuggguaagg 720

ggucugucua guggaauaag caucuauugg acaauaguua aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

uguccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca auggaaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aguucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca cagaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98984

<400> 40557
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agacuuucca 60

agaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaauggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggggaaaau augcaauaau ccucaucgaa uccucgaugg aauggacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gccuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucuggcacuc uggaguuuau caaugaaggc 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agagguuuuu ucaguagacu gaacugguug uacaaaucag gaaacacaua uccaguacug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagacca aaccagccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaauaucg ggccuagacc cuggguaagg 720

ggucugucua guggaauaag caucuauugg acaauaguua aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

ugucccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca auggaaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aguucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca cagaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40558
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG98995

<400> 40558
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca agaccuucca 60

ggaaaugaca acaacagcac agcaacgcug ugccugggac aucaugcggu gccaaacgga 120

acgcuaguga aaacaaucac gaaugaucag auugaaguga cuaaugcuac ugagcugguu 180

cagaguuccu caacggguaa aauaugcaac aauccucauc gaauccuuga uggaauaaac 240

ugcacacuga uagaugcucu auuggggac ccucauugug auggauuuca aaaugagaaa 300

ugggaccuuu ucguugaacg cagcaaagcu uucagcaacu guuacccuua ugaugugcca 360

gauuaugccu cccuuagguc acuaguugcc ucgucaggca cucuggaguu uaucaaugaa 420

ggcuucaauu ggacuggggu cacucagaau gggggaagca augcuugcaa aagaggaccu 480

gauaucgguu uuuucaguag acugaacugg uuguacaaau caggaagcac auauccagug 540

caaaacguga ccaugccaaa caaugacaau ucugacaaac uauacauuug ggggguucac 600

cacccgagca cggacaaaga acaaaccgac cuauauguuc aagcaucagg gaaagucaca 660

gucuccacca agagaagcca gcaaacuaua aucccgaaug ucgggucuag acccugggua 720

aggggucugu cuaguagaau aagcaucuau uggacaauag uuaaaccggg agacauacug 780

guaauuaaua guaaugggaa ccuaauugcu ccucgggguu acuucaaaau gcgcacuggg 840

aaaagcucaa uaaugagguc agaugcaccu auuggcaccu gcagcucuga augcaucacu 900

ccaaauggaa gcauucccaa ugacaagccc uuucaaaacg uaaacaagau cacauauggg 960

gcauguccca aguauguuaa gcaaaacacu cugaaguugg caacagggau gcggaaugua 1020

ccagagaaac aaacuagagg cauauucggc gcaauagcag guuucauaga aaaugguugg 1080

gagggaauga uagacgguug guacgguuuc aggcaucaaa auuccgaggg cacaggacaa 1140

gcagcagauc uuaaaagcac ucaagcagcc aucgaccaaa ucaaugggaa acugaauagg 1200

guaaucgaga agacgaacga gaaauuccau caaaucgaaa aggaauucuc agaaguagaa 1260

gggagaauuc aggaccucga gaaauacguu gaagacacua aaauagaucu cuggucuuac 1320

aaugcggagc uucuugucgc ucuggagaac caacauacaa uugaucugac ugacucggaa 1380

augaacaaac uguuugaaaa aacaaggagg caacugaggg aaaaugcuga ggacaugggc 1440

aaugguugcu ucaaaauaua ccacaaaugu gacaaugcuu gcauaggguc aaucagaaau 1500

gggacuuaug accaugaugu auacagagac gaagcauuaa acaaccgguu ucagaucaaa 1560

gguguugaac ugaagucagg auacaaagac uggauccugu ggauuuccuu ugccauauca 1620

ugcuuuuugc uuuguguugu uuugcugggg uucaucaugu gggccugcca aaaaggcaac 1680

auuaggugca acauuugcau uuga 1704

<210> 40559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99006

<400> 40559

augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agacuuucca 60

agaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaauggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggggaaaau augcaacaau ccucaucgaa uccucgaugg aauggacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gccuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucuggcacuc uggaguuuau caaugaaggc 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agagguuuuu ucaguagacu gaacugguug uacaaaucag gaaacacaua uccaguacug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagacca aaccagccua uauguucaag caucagggag agucacaguc 660

uccacaaaga gaagccagca aacuguaauc ccgaauaucg ggccuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca auggaaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aguucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca cagaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99017

<400> 40560
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ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99028

<400> 40561
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ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcggcaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99039

<400> 40562
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ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacguggcca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacuau uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40563
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99050

<400> 40563
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca agaccuucca 60

ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu aaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99061

<400> 40564
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca agaccuucca 60

ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

ugucccaagu auauuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauaaggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99072

<400> 40565
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca agaccuucca 60

ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuagaucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cuggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacagacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagagggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99083

<400> 40566
augaagacca ucauugcuuu gagcuacauu uucugucugg uuuucgccca agaccuucca 60

ggaaaugaua acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cuggggucac ucagaauggg ggaagcagug cuugcaaaag gggaccugau 480

aaagguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaga gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcu cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagccauc gaucaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucaug accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40567
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99094

<400> 40567
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ggaaaugaca acagcacagc aacucugugc cugggacauc augcggugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga acugguucag 180

aguuccucaa cggguaaaau augcgacaau ccucaucgaa uccuugaugg aauaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cugggucac ucagaauggg ggaagcggug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcag 540

aacgugacca ugccaaacaa ugacaacucu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccgaccua uauguucaag caucagggaa agucacaguc 660

uccaccaaaa gaagccagca aacuguaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaguaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99116

<400> 40568
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugguag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaagc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aacaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacagua 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua auggaaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40569
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99127

<400> 40569
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugguag augcucuauu aggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccucuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaagc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aacaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacca ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggucugucua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG99138

<400> 40570

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugguag augcucuauu gggagacccc cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaagc 420

uucaauugga cuggagucac ucagaguggg ggaagcucug cuugcaaaag gggaucugau 480

aacaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaaaccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacugcua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg caaugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggggca 960

uguccccaagu acguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucgaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uucuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40571
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99149

<400> 40571
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag cagagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aacaguuucu ucaguagacu gaacuggcug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucaccguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cgcagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acauaugacc augauguaua cagagacgaa gcauuaaaca accgauuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99171

<400> 40572
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugguag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuac caaugaaagc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aacaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaaaccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacugcua 780

auuaauagua acgggaaccu aauugcuccu cgggguuacu ucaaaauacg caaugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaauguaa acaagaucac auaugggca 960

uguccccaagu acguuaagca aaauacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucgaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cuaagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uucuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40573
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99182

<400> 40573
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaacugccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug uacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaaga 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99193

<400> 40574
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaucuuuuug uugaacgcag caaagcuuuc agcaacugcu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug uaugagucag aaagcaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gaaaaauugu acauuugggg gguucaccac 600

ccuagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggccuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca cugggaaccu aauugcuccc cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

uguccccaggu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguaccu 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug auaugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc auaauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40575
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguua uacaaaucag aaagcaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca cuggaaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa uaaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

ugucccaggu auguuaaaca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuu aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99215

<400> 40576
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gauuccaaaa ugagaaaugg 300

gaccuuuuua uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug uacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg aaaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

uguccccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40577
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99226

<400> 40577

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccugau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug uacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaaga 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacugucg 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug accugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99237

<400> 40578
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucaa 180

aguuccucaa caggucgaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag ggaaucuguu 480

aacaguuucu ucaguagauu gaauugguug uacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gaaaaauugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cugggugaga 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu uuaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

uguccccaggu auguuaggca aaacacccug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40579
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99248

<400> 40579
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caauaacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagccaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaucacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg caaugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

uguccccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99259

<400> 40580
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagguu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acgcugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga uguaccggau 360

uaugcuuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacag acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggccugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aaugggagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucaucgaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40581
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99270

<400> 40581
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guaggauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucauaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99281

<400> 40582
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagaa 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcagauuu gacaaauugu acauuugggg gguucaccac 600

ccuagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggccuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggggа cauacuguug 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauaca cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucua aaauuggcaa cagggaugcg gaauguacca 1020

gauaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aagaaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggauuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99292

<400> 40583
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagguu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acgcugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga uguaccggau 360

uaugcuuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacag acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggccugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aaugggagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucaucgaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99303

<400> 40584
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa caggucgaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagauccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacuggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uuuccaauga caaacccuuu caaaauguaa acaggaucac auaugggca 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gaaaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acggaaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucuuug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40585
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99314

<400> 40585
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaua guuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguua cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gauccaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucuaucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaauuacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaagaucac cuaugggggca 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acggaaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40586
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99336

<400> 40586
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ggaaaugaca acagcacagc aacgcugugc cuaggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa caggucgaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucccu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacuggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40587
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99347

<400> 40587
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ggaaaugaca acagcacagc aacgcugugc cuaggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa caggucgaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucccu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacaaaccag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacuggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggca 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgauaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 40588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG99358

<400> 40588

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ggaaaugaca acagcacagc aacgcuaugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguucuucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaauuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca uagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga uguacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua ugguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguggaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40589
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99369

<400> 40589
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaaca 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauuggg cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucaaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cacaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99380

<400> 40590
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucaaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggagca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcag cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40591
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucaaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggagca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cggcuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcag cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99402

<400> 40592
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggucacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acggcuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99413

<400> 40593
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucaaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggagca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaggcag cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99424

<400> 40594
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucaaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggagca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaggcag cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99435

<400> 40595

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugacgg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gccuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacuc uggaguuuac caaggaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacuggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacccca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuaggggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auagaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug accugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99446

<400> 40596
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugacgg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gccuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacuc uggaguuuac caaggaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacuggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacccca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuaggggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag augguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auagaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug accugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuucuuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99457

<400> 40597
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uucuugaugg ggaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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ggaaaugaca acagcacagc aacgcugugc cuaggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa caggucgaau augcgacagu ccucaccgga uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca cugggaaccu aauugcuccu cggggcuacu ucaaaauacg aacuggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

gacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40599
<211> 1701
<212> RNA

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuua uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggca 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa caggucgaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagauccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaua cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacuggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uuuccaauga caaacccuuu caaaauguaa acaggaucac auaugggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gaaaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acggaaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugagaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cuaggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa caggucgaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucac aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acaucugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccagca aacuguaauc ccgaacaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccggaaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acagaaucac auaugggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggugca aucgcaggcu ucauagaaaa ugguugggag 1080

gggaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgaaaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40603
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccaggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40604
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40605
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40605
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccaggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucgua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40606
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<220>

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<400> 40606

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99578

<400> 40607
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

uuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99589

<400> 40608
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40609
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99600

<400> 40609
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgag uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aauugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99611

<400> 40610
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40611
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99622

<400> 40611
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99633

<400> 40612
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40613
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99644

<400> 40613

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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuaguaaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccgca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacca ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagagguau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

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gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aauagaaggg 1260

agaauucaga accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99655

<400> 40614
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuaguaaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacca ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggacugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagagguau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aauagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gauaaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40615
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40615
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuaguaaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacca ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagagguau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aauagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gauaaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40616
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40617
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 40617
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99701

<400> 40618
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caacgcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

gcugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99712

<400> 40619
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga agugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99723

<400> 40620
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40621
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99734

<400> 40621
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuaguaaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacca ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagagguau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aauagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gauaaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99745

<400> 40622
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg aaagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccaaacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugagaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca ugggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99756

<400> 40623
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFG99767

<400> 40624

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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaauuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu agggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

auagagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg aucucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40625
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99778

<400> 40625
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ggaaaugaca acagcacagc aacgcuaugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa cacucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaaaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gccuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaaguu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguucu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99789

<400> 40626
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggugca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99800

<400> 40627
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuaguaaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuuguaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacca ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau augugaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagagguau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcaccca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aauagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gauaaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99811

<400> 40628
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuaguaaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacca ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagagguau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aauagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99822

<400> 40629
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99833

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40631
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFG99844

<400> 40631

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcag cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40632
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gggaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augacguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40633
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99866

<400> 40633
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99877

<400> 40634
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40635
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99888

<400> 40635
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augccacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca auucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accuagagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguucu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99899

<400> 40636
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40637
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFG99910

<400> 40637
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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ggaaaugaca acagcacagc aacguugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacuggaaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucaaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaacu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aaugugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg aaagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguucaaacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugagaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg aaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg gaauguacca 1020

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ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40643
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40643
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augugacagu ccucaccgaa uccuugaugg gaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag auuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

uccaccaaaa gaagccaaca aacugugauc ccgaauaucg gauccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugagaucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaacccuuu caaaacguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

accuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 40644
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccucgaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaauuguu acccuuauga ugugccagau 360

uacgccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaauggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggca 960

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gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

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gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40645
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40646
<211> 1701
<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuaguaaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacca ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagagguau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aauagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gauaaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaaaau augcgacagu ccucaccgaa uccucgaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccaaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcucca cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auauggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauaaguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40648
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<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaaaau augcgacagu ccucaccgaa uccucgaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccaaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcucca cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcaaccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauaaguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40649
<211> 1701
<212> RNA
<213> Artificial Sequence

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<400> 40649

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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccucgaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaauggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa cgacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcuccu cgggguuacu ucaaaauacg gacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca uaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00065

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaaca 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagccca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00076

<400> 40651
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaaaau augcgacagu ccucaccgaa uccucgaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccaaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcucca cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca auucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gaaaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

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gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugaacuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00087

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cgaagcuuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaucac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauagg caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaagaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40653
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00098

<400> 40653
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaaca 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugccca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg aucucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00109

<400> 40654
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaua cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauuggcug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40655
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00120

<400> 40655
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagc ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc accauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00131

<400> 40656
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaua cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcguuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40657
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00153

<400> 40657
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40658
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00164

<400> 40658
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguccag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccucgaugg aaaaaacugc 240

acacugaugg augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaauggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccaagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40659
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00175

<400> 40659
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuuugcuca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa aaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40660
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFH00186

<400> 40660

augaagacua ucauugcuuu gagccacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcuaugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguucuucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaauuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccuagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaguagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga uguacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua ugguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguggaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuua uuguugccuu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40661
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacca augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaua cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcucug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa uaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagggacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40662
<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccucgaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaauggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgguaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaguagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cuaagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucacagga uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu aauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca caggaaaucu aauugcuccu cgggguuacu ucaagauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgauaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40664
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacga acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuucaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40665
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00241

<400> 40665
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuucaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40666
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40666
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccucgaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaauuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gacagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaguugu acauuugggg gguucaccac 600

ccaagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaucu aauugcucca cgggguuacu ucaaaauaag aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gauaaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40667
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00263

<400> 40667

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu aauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugucca aaccagccua uauguucgag caucagggaa agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuaaacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca caggaaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40668
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00274

<400> 40668
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauuggcug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guggaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

gucgagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40669
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00285

<400> 40669
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguuccucaa cagguagaau augcggcagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag aggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acagaaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40670
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40670
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaaca 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucaaccaaaa gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cacaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40671
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguuagag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga ucuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00318

<400> 40672
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguuagag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga ucuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40673
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00329

<400> 40673
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu caucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagcaua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcacuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cacaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00340

<400> 40674
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacag acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaguagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauauacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40675
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00351

<400> 40675
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaggaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

gauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacaagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40676
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00362

<400> 40676
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggggucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cugggugagg 720

ggcaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcugagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cacaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40677
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaggaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca uagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaagcu gaauagguua 1200

aucgagaaaa cgaacgaaaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggggcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40678
<211> 1701
<212> RNA
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cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaggaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacgguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaaaagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag augguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aagaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucagg caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cugggugagg 720

ggcauuucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua agagcacuca agcagcaauc gaucaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40680
<211> 1701
<212> RNA
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguucuccaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaagaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caacgaaaac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag acuacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguccgag caucagggaa agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccggauaucg gguauagacc auggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucagaauu cugagggcac aggacaagcu 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

gucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guuuuguuuu gcuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40681
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aaugugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaaga 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

agcaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00450

<400> 40682
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacggu ccucaccgaa ucauugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacua 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaau caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcagagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40683
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40683
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccccaa cagguagaau augcgacagu ccucaccgga uccuugaugg aaagaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caacgaaaac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag acuacaaaua cccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacug acagugacca aaucagccua uauguccgau caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccggauaucg gguauagacc augguaaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaacuacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucuggaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac uuauggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagcu 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

gucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caagugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40684
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00472

<400> 40684
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugucggau 360

uaugccuccc uuaggucacu aguugccuca uccgguaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gagaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aauaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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<400> 40685

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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaaaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
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cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccccaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaagaacugc 240

acacugauag augcucuuuu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caacgaaaac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguccgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccggauaucg gguauagacc augguaagg 720

ggucagucca guagaauagg caucuauugg acaauaguaa aaccgggaga cauacuucug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagcu 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaagcu gaauagguua 1200

gucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auucuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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cuagugaaaa caaucacaaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggaguugc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacguuacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguuagg 720

ggugucucca gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cugggugagg 720

ggcaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaaaagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca acgggaaacu gaauagauua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucgggaua caaagauugg auccuaugga uuucuuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40689
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 40689
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cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag cauccauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40690
<211> 1701
<212> RNA
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<220>
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cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

agguccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugcauca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaacugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 40691
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

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uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caccagggag agucacaguc 660

ucuaccagaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu agcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

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agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40692
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacauu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caccagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagua cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga agcagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaccucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40693
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00571

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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugacaacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caacgaaagc 420

uucaauugga cuggagucga ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu ucgaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcuua uaugcucaag caccagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacugca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcgggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugucuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40695
<211> 1701
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AFH00593

<400> 40695
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ggaaaugaca acagcacggc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaaguaacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40696
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFH00604

<400> 40696

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ggaaaugaca acagcacggc aacgcugugc cuggggcauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaaguaacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40697
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00615

<400> 40697
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu aaauugguug acccacuuaa aguacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg acaucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagagucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40698
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00626

<400> 40698
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gacgucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40699
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00637

<400> 40699
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccauuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacga acaaugacca aaucagccua uauacucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40700
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40700
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 40701
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40701
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auggugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaauggg acaagcucug cuugcaaaag gagaucugau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40703
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40703

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acauuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa agaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40704
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40705
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguucuucaa cagguaaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cucagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcccaag caucaggaag aaucacaguc 660

ucuaccaaaa ggagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaaugca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguga acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa guuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00714

<400> 40706
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aaaaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guggaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40707
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH00725

<400> 40707
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aacaguuucu ucaguagacu gaacugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaacua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccaggu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acauaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

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aggugcaaca uuugcauuug a 1701

<210> 40708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00736

<400> 40708
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauu ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca gcucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg aucuuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40709
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00747

<400> 40709
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ggaaaugaca acagcacagc aacgcugugc cugggacauu augcagugcc aaacggaaca 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugacg gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuaggcc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acggcuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga aaucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40710
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00758

<400> 40710
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaacua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40711
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00769

<400> 40711
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ggaaaugaca acagcacagc aacgcugugc cuggggcauc augcagugcc aaacggaacu 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaua cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagagaaca aaccagccua uauauucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucgauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40712
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00780

<400> 40712
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcgacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggggucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugccccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40713
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00791

<400> 40713
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

gguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug ucgaacgcag cacagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaagaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaua cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucgga ugcacccauu gacaacugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaga cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaacu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu ucgaaagaac aagaaaacaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugauc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc auuauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFH00802

<400> 40714

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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuucg uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gaggucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggugca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40715
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH00813

<400> 40715
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

gauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucgau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40717
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gauuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagagucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40718
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40718
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggggguacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga uaaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacugg cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40719
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40719
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu aggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccgca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40720
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH34968

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccgca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40721
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH34975

<400> 40721

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga auggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74464

<400> 40722
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gauuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40723
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74465

<400> 40723
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74477

<400> 40724
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua ccaagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40725
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74488

<400> 40725
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacaau ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa guuccaucag auugaaaaag aauucucaga aguugaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74499

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggа cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40727
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74510

<400> 40727
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74521

<400> 40728
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauccaaaua cccagcauug 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaagucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga ggucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40729
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74532

<400> 40729
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74543

<400> 40730
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40731
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74554

<400> 40731
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40732
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFH74565

<400> 40732

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40733
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74576

<400> 40733
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuaccga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacuguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caagugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74587

<400> 40734
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40735
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74598

<400> 40735
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40736
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74609

<400> 40736
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40737
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74620

<400> 40737
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74631

<400> 40738
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aacaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40739
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74642

<400> 40739

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74653

<400> 40740
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40741
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74664

<400> 40741
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74675

<400> 40742
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccucgaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40743
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74686

<400> 40743
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaauuacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74697

<400> 40744
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaauuacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40745
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74708

<400> 40745
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca ucugcauuug a 1701

<210> 40746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74719

<400> 40746
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40747
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74730

<400> 40747
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg gaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH74741

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40749
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH74752

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40750
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFH74763

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40751
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFH74774

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74785

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuacaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74796

<400> 40753
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74807

<400> 40754
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggguc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40755
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74818

<400> 40755
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggguc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggguc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40757
<211> 1701
<212> RNA
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<220>
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<400> 40757

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggguc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40758
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac ggcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug agauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40761
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 40761
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74895

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74906

<400> 40763
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74917

<400> 40764
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40765
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74928

<400> 40765
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74939

<400> 40766
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH74950

<400> 40767
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac ggcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFH74961

<400> 40768

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH75388

<400> 40769
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFH97140

<400> 40770
augaaggcaa uacuaguagu ucugcuauau auauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguucugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40771
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<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uucggucacu aguugccuca uccggcacac uggaguuuaa caaugaaugc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aauauuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguggag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40773
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggc acaagcucug cuugcauaag gagcucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40775
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ19842

<400> 40775

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaggucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40776
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ20171

<400> 40776
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcuaguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggauca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40777
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ20182

<400> 40777
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac gcaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40778
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74386

<400> 40778
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugccga 180

cuaaaaggaa cagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagcucaugg 420

cccaaccaca ccguaaccaa aggagugacg gcaucaugcu cccauaaugg gaaaagcagu 480

uuuuacaaaa auuugcuaug gcugacggaa aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaacaagga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagggg accaaagggc caucuaucau acagaaaaug cuuaugucuc ugugaugucu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagagaucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguac gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucaaugggu gaaugugacg cuaaguguca aacaccccaa 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugu 960

cccaaguaug ucaggaguac aaaauuaagg augguuacag gacuaagaaa caucccaucc 1020

auucaaucua gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugca 1140

gaccaaaaaa gcacacaaaa ugccauugau gggauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugua ggcaaagaau ucaacaaauu agagagaagg 1260

auggaaaacu uaaauaagaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaguuguugg uucuccugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauug aagaauaaug ccaaagaaau cgggaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cggagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 40779
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74407

<400> 40779
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaggugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcccuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgauucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74418

<400> 40780
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccug uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40781
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74437

<400> 40781
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccug uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74448

<400> 40782
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggaggcccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40783
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74459

<400> 40783
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uguauaggcu accaugcgaa caacucaacu gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugccga 180

cuaaaaggaa cagccccacu acaauugggu aauugcagca uugccggaug gaucuuagga 240

aauccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacccugaaa auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uuugaaauau uccccaagga aagcucaugg 420

cccaaccaca ccguaaccaa aggagugacg gcaucaugcu cccauaaugg gaaaagcagc 480

uuuuacaaaa auuugcuaug gcugacggag aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaacaagga aaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagggg accaaagggc caucuaucau acagaaaaug cuuaugucuc uguaguguc u 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagaaaucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguac gcuuucgcau ugaguagagg uuuuggguca 840

ggaaucauca ccucaaacgc aucaaugggu gaaugugacg cuaaguguca aacaccccaa 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggggagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggagg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaccaaaaaa gcacacaaaa ugccauuaau gggauuacaa acaaggugaa uucuauaauc 1200

gagaaaauga acacucaauu cacagcugua ggcaaagaau ucaacaaauu agaaagaagg 1260

auggagaacu uaaauaagaa aguugaugau ggauuucugg acauuuggac auacaaugca 1320

gaauuguugg uucuccugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaccuguaug agaaaguaaa aaaccaacug aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc caaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 40784
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74470

<400> 40784
augaagacua ucauugcuuu aagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gagaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaaa caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucaagacc cuggguaagg 720

gguguuucca gcagaauaag caucuauugg acaauaguaa agccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaacuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguug 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74492

<400> 40785
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcaguacc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa uaaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguucca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgggaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucaa gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ74525

<400> 40786

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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucaggaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggacc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40787
<211> 1701
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AFJ74535

<400> 40787
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcaguacc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa uaaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgggaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucaa gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74560

<400> 40788
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucaaa caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuggacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuauu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggccc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

gucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40789
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74634

<400> 40789
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40790
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74653

<400> 40790
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccuccuaac 600

auaggugacc aaagggcccu cuaucauaca gacaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40791
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74673

<400> 40791
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagaaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccuccuaac 600

auaggugacc aaagggcccu cuaucauaca gacaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40792
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74674

<400> 40792
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augugacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag cgucagggag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaga 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaac cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca augggaaauu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40793
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74694

<400> 40793

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccuccuaac 600

auaggugacc aaagggcccu cuaucauaca gacaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74695

<400> 40794
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca ucaggcacgc uggaguucaa caaugaaagc 420

uucaauugga cuggagucgc ucaggaugga acaagcucug cuuguaaaag gagaucugau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acagugacca aaucagccua uaugcucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauauug gaucuagacc cuggguaagg 720

ggugucucca gcaaaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggccc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggugca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac agggcaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74727

<400> 40795
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaagugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40796
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74743

<400> 40796
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccuccuaac 600

auaggugacc aaagggcccu cuaucauaca gacaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40797
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40797
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uacgccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40798
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74760

<400> 40798
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccuccuaac 600

auaggugacc aaagggcccu cuaucauaca gacaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug caacgaugaa ugcauggaga guguaaaaaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74761

<400> 40799
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg gagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40800
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74779

<400> 40800
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gauauuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccuccuaac 600

auaggugacc aaagggcccu cuaucauaca gacaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaaa uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40801
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74780

<400> 40801
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuacga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caccaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74804

<400> 40802
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaggaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauagcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40803
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ74819

<400> 40803
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucaaccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauagcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ74842

<400> 40804

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ggaaaugaca acagcacggc aacgcugugc cuugggcauc augcaguacc aaacggaacg 120

auagugaaaa caauaacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccggauaag caucuauugg acaauaguaa aaccgggaga cauacuucug 780

auuaacagca cagggaaucu aauagcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

auagggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40805
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75036

<400> 40805
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uguauaggcu aucaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aaacucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75047

<400> 40806
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacagcuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40807
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75058

<400> 40807
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40808
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75069

<400> 40808
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaauca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcucu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccug ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40809
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75091

<400> 40809
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa uaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaucuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75449

<400> 40810
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaaa aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40811
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ75460

<400> 40811

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaguc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40812
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ75517

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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cauacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaucauaaa aaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcacc aagauaugcu uucgcacuga auagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaac ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40813
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ75560

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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguuuguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa uguaaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaagg aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40814
<211> 1698
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AFJ75571

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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacauucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aaacagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucacca cccgccaaac 600

auaggugacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agagaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40815
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ75593

<400> 40815
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gaaaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaua accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40816
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ75615

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uguguaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu ggugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacuauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agaaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40817
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ75630

<400> 40817
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40818
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75641

<400> 40818
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcacu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40819
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75651

<400> 40819
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuacagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu cagaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucga ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 40820
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75662

<400> 40820
augaagacua ucauugcuuu gagcuacauu cuauguuugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaac 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

auaggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40821
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ75673

<400> 40821
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cauacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcacc aagauaugcu uucgcacuga auagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaac ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40822
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ76119

<400> 40822

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40823
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ76131

<400> 40823
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40824
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ76155

<400> 40824
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa agcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40825
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ76186

<400> 40825
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua accaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu cagaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaacgg gucuuugcaa 1680

uguagaauau gcaucuaa 1698

<210> 40826
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ76203

<400> 40826
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40827
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ76213

<400> 40827
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaac 480

aaaaguuucu uuaguagauu gaauugguug acccacucaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acaucugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauagcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40828
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77408

<400> 40828
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcaacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaggaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuauu cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucaag caucggggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgaaaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40829
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77430

<400> 40829

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu aauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaggaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuauu cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaucagccua uaugcucaag caucggggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg gaaugugcca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua ugguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgaaaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77440

<400> 40830
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaggugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac cagugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgauucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40831
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77451

<400> 40831
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gagaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgggaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77462

<400> 40832
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40833
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77473

<400> 40833
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccug uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40834
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ77484

<400> 40834
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugagcgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40835
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77495

<400> 40835
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgag ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuuug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

gguguuucca gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuucug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaagucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucacaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugucugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77506

<400> 40836
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccccaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40837
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77517

<400> 40837
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcaaug cuugcaaaag gagaucuaug 480

aaaaguuucu uuaguagauu gaauugguug caccaauuga aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugauaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuacccaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa uaaggucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77528

<400> 40838
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaagaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucgga ugcacccauu gacaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aagaaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugaguuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40839
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77550

<400> 40839
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcauac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccug uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccaaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaaacua gaggcauauu cggcgcaauc gcgggguuuca uagaaaaugg uugggaggga 1080

augguggacg guugguacgg uuucaggcau caaaauucug agggcacagg acaagcagca 1140

gaucuuaaaa gcacucaagc agcaaucaac caaaucaacg ggaaacugaa uagguuaauc 1200

gagaaaacga acgagaaauu ccaucaaauu gaaaaagaau ucucagaagu agaagggaga 1260

auucaggacc ucgagaaaua uguugaggac acuaaaauag aucucugguc guacaacgcg 1320

gagcuucuug uugcccugga gaaccaacau acaauugauc uaacugacuc agaaaugaac 1380

aaacuguuug aaagaacaaa gaagcagcug agggaaaaug cugaggauau gggcaauggu 1440

uguuucaaaa uauaccacaa augugacaau gccugcauag ggucaaucag aaauggaacu 1500

uaugaccaug auguauacag agacgaagca uuaaacaacc gguuccagau caaagguguu 1560

gagcugaagu caggauacaa agauuggauc cuauggauuu ccuuugccau aucauguuuu 1620

uugcuuugug uuguuuugcu gggguucauc auguggccu gccaaaaagg caacauuagg 1680

ugcagcauuu gcauuuga 1698

<210> 40840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ77561

<400> 40840

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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gagaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucaagacc cuggguaagg 720

gguguuucca gcagaauaag caucuauugg acaauaguaa agccgggaga cauacuuuug 780

auuuacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaacuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguug 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40841
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77572

<400> 40841
augaagacua ucauugcuuu gagcuacauu uuaugucagg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcauac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccug uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccaaauaucg gaucuggacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaaacua gaggcauauu cggcgcaauc gcgggguuuca uagaaaaugg uugggaggga 1080

augguggacg guugguacgg uuucaggcau caaaauucug agggcacagg acaagcagca 1140

gaucuuaaaa gcacucaagc agcaaucaac caaaucaacg ggaaacugaa uagguuaauc 1200

gagaaaacga acgagaaauu ccaucaaauu gaaaaagaau ucucagaagu agaagggaga 1260

auucaggacc ucgagaaaua uguugaggac acuaaaauag aucucugguc guacaacgcg 1320

gagcuucuug uugcccugga gaaccaacau acaauugauc uaacugacuc agaaaugaac 1380

aaacuguuug aaagaacaaa gaagcagcug agggaaaaug cugaggauau gggcaauggu 1440

uguuucaaaa uauaccacaa augugacaau gccugcauag ggucaaucag aaauggaacu 1500

uaugaccaug auguauacag agacgaagca uuaaacaacc gguuccagau caaagguguu 1560

gagcugaagu caggauacaa agauuggauc cuauggauuu ccuuugccau aucauguuuu 1620

uugcuuugug uuguuuugcu gggguucauc augugggccu gccaaaaagg caacauuagg 1680

ugcagcauuu gcauuuga 1698

<210> 40842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77583

<400> 40842
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guaaaggaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggac 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40843
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77594

<400> 40843
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guaaaggaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcugagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77605

<400> 40844
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaaaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacca ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

gggauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggugcaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcaguaaaca aucgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40845
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77616

<400> 40845
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guaaaggaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77627

<400> 40846
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guaaaggaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40847
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77638

<400> 40847

augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcaguacc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauuau acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caccacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa uggaugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgggaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77649

<400> 40848
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcaguacc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggaguagc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacaaca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgggaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucaa gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77660

<400> 40849
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuaggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu aaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40850
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40851
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggugucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgcg aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaaaugaca acagcacggc aacgcugugc cugggacacc auacagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugacaacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caacgaaagc 420

uucaauugga cuggagucga ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu uugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

auugagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu ucgaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40853
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ77715

<400> 40854
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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugacaacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caacgaaagc 420

uucaauugga cuggagucga ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu ucgaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40855
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77726

<400> 40855
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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugacaacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caacgaaagc 420

uucaauugga cuggagucga ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu ucgaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77737

<400> 40856
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77748

<400> 40857
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aauuagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ77759

<400> 40858

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77781

<400> 40859
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cagugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauagcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucgga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caagugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77792

<400> 40860
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77803

<400> 40861
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77814

<400> 40862
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77825

<400> 40863
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaggccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77836

<400> 40864
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77847

<400> 40865

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaacguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77858

<400> 40866
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuacccaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauaaguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuuguuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77869

<400> 40867
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagggaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40868
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggaggaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaaguucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaacguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uucuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40869
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 40869
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucauu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucggccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag cauuuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ77913

<400> 40870
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugcaggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgauucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40871
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77924

<400> 40871
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaaugg augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggaau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77935

<400> 40872
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaaugg augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaacauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40873
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77946

<400> 40873
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc ucaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auauuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg aucauaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40874
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77957

<400> 40874
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40875
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 40875
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ77979

<400> 40876

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga ggucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40877
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ77990

<400> 40877
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucu uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augaugaaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuacuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40878
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ78001

<400> 40878
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuacuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40879
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78012

<400> 40879
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40880
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78023

<400> 40880
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucgga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucgga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40882
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<212> RNA
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuaggcc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 40883
<211> 1701
<212> RNA
<213> Artificial Sequence

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<400> 40883

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaga 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau agggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggcua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 40885
<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu gacaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgcuucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa uaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaucuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40887
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 40887
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 40888
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaacuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40889
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78122

<400> 40889
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgauagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg gagugggaga 840

agcucaauaa ugagaucaga ugcacccauu gacaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucaggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78144

<400> 40890
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcauaag aagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78155

<400> 40891
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcauaag aagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1140

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40892
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78166

<400> 40892
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaggcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40893
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78177

<400> 40893
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ78188

<400> 40894

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78210

<400> 40895
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

auugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78221

<400> 40896
augaagacua ucauugcuuu gagcuacauu cuauguuugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaac 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aaugugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ78232

<400> 40897
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaac 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggcgcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaacg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaaccga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78243

<400> 40898
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaac 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccau 600

ccggguacgg acaaugacca aaucuuccug uaugccaaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccguu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg cauaaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40899
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78254

<400> 40899
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ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gaaaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaua accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40900
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78265

<400> 40900
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ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gaaaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaua accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78276

<400> 40901

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggaguuac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaua accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40902
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78287

<400> 40902
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaaugg augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40903
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78309

<400> 40903
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauuaggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuucuaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucggca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aauggcuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgucuaac 600

auaggggacc aaagggccau cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gcaaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccaa ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

auagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 40904
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78320

<400> 40904
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcaguacc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauuau acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgggaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 40905
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78331

<400> 40905
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaaccugggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag uuacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuggaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 40906
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78342

<400> 40906
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaaccugggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag uuacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuggaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 40907
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78353

<400> 40907
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucu 540

uauguaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcacc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag uuacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggc uuucuggaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 40908
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78364

<400> 40908
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauuaggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca cuguaaccgg aguaucggca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aauggcuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgucuaac 600

auaggggacc aaagggccau cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauaaca gaagauucac cccagaaaua gcaaaaagac ccaaaguaag aaaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcaa agugccaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccaa ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

auagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg aucacaaaca aggugaauuc ugugauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa acaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uugcugguuc uacuggaaaa ugaaaggacu uuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 40909
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78375

<400> 40909
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

guuacaguga cacacucuau caaccuacuu gagaacaguc acaauggaaa auuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuucuaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguauccuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucggca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aauggcuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgucuaac 600

auaggggacc aaagggccau cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gucaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguaa ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

auagaugggu gguaugguua ucaucaucag aaugagcaag gaucugguua ugcugcagau 1140

caaaaaagca cacagaaugc cauuaacggg auuacaaaca aggugaauuc uauaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugaugga uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuagaaaa ugaaaggacu uuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaaaug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 40910
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78386

<400> 40910
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug gcuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca gcaaauugga gagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aagugaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40911
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78397

<400> 40911
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug gcuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca gcaaauugga gagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aagugaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40912
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ78408

<400> 40912

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gaucuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaauaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40913
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78419

<400> 40913
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaaaaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaguaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accccaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag gucuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga ggaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40914
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78430

<400> 40914
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagug uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaccca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu ggacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40915
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78441

<400> 40915
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaga gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucugga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcuguggac aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40916
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78452

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cacuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucau cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucauuaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuacccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40917
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78463

<400> 40917
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cacuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gggcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucau cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucauuaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuacccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40918
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78474

<400> 40918
augaaaguaa aacuacuggu ccuguuaugc acauuuacug cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugaaaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccu auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuauuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guccuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40919
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78485

<400> 40919

augaaaguaa aacuacuggu ucuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugaa 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaagauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40920
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78496

<400> 40920
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagguggcc aaagggcucu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccug ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40921
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78518

<400> 40921
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccacaaccgg aguaucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcucu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucuacuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccug ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg uucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40922
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78529

<400> 40922
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40923
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78540

<400> 40923
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40924
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78551

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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40925
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78562

<400> 40925
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uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaacccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ucaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggccu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40926
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78573

<400> 40926
augaaaguaa aacuacuggu ccuauuaugc acauuuacag cuacauaugc agacacaaua 60

uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcauc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaagcaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40927
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78584

<400> 40927
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucgcaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40928
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78595

<400> 40928
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acagagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40929
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78617

<400> 40929
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc augaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugacc aaaagacccu cuaucauaca gaaaaugcuc auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu cgaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugagc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaaa aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaaugaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucgaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40930
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ78628

<400> 40930

augaaaguaa aacuacuggu ccuauuaugc acauuuacag cuacauaugc agacacaaua 60

uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccagga cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacggggа aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40931
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78639

<400> 40931
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacagggc uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucgaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40932
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78650

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaguaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaaugaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucgaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 40933
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78661

<400> 40933
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78681

<400> 40934
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccguaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaauuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40935
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78691

<400> 40935
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78701

<400> 40936
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucaa aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40937
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78711

<400> 40937

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaggguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40938
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78721

<400> 40938
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40939
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78731

<400> 40939
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

gguucuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78741

<400> 40940
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40941
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78751

<400> 40941
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78761

<400> 40942
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40943
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78771

<400> 40943
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78781

<400> 40944
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40945
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78791

<400> 40945
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78801

<400> 40946
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagucu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78811

<400> 40947
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFJ78821

<400> 40948

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40949
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78831

<400> 40949
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78841

<400> 40950
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40951
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78851

<400> 40951
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggagau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40952
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78861

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaga 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40953
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ78881

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacauca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40954
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78891

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40955
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78901

<400> 40955

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78911

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40957
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFJ78921

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauacguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFJ97567

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guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagcuu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40959
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14115

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14131

<400> 40960
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14139

<400> 40961
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40962
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14148

<400> 40962
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40963
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14157

<400> 40963
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40964
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14166

<400> 40964
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuccua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40965
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14175

<400> 40965
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40966
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFK14184

<400> 40966

augaaggcaa uacuaguagu ucugcuauau acauuugaaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucagucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40967
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14193

<400> 40967
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcggg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40968
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14202

<400> 40968
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40969
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14211

<400> 40969
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcggg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40970
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14220

<400> 40970
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagcgucauc auuugaaagg uaugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40971
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14229

<400> 40971
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40972
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14238

<400> 40972
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacacc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40973
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14247

<400> 40973

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauga acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40974
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14272

<400> 40974
augaaggcaa uacuaauagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaacagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40975
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14314

<400> 40975
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcggg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40976
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14323

<400> 40976
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagucaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40977
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14332

<400> 40977
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14341

<400> 40978
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaaa acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40979
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14350

<400> 40979
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40980
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14358

<400> 40980
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggagcgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaucu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaaa acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40981
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14395

<400> 40981
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaaa auggaaugug uugcccaaga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagucucauc auuugaaagg uuugagauau uccccaagac aagcucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40982
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14431

<400> 40982
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuuccucg auuaugaaga gcuuagaaag 360

caauugagcu cagugucauc auuugaaagg guugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40983
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14456

<400> 40983
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40984
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFK14465

<400> 40984

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40985
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14536

<400> 40985
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacauau 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acacuagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 40986
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14571

<400> 40986
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40987
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14586

<400> 40987
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40988
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14595

<400> 40988
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccaaagu gugaaucacu cuccacagca agcucauggu ccuacauugg ggaaacaucu 300

aguucaaaca auggaacgug uuacccagga aauuucaucg auuuugagga gcuaaaaaag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40989
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14612

<400> 40989
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40990
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14621

<400> 40990
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40991
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14630

<400> 40991

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagggcug accuacaaag uaucaaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40992
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14639

<400> 40992
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguaggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aggccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40993
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14661

<400> 40993
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40994
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14670

<400> 40994
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40995
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14678

<400> 40995
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40996
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14688

<400> 40996
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucc augaugaaga gcuaagaaag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa agcuggaucu 840

gguauuauca uuuuagauac accaguccac gauuggaaua caacuuguga gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40997
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14697

<400> 40997
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40998
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14713

<400> 40998
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaacg ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 40999
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14722

<400> 40999
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41000
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14731

<400> 41000
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagaaag 360

caauugagcu cagugucauc auuugaaagg guugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41001
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14740

<400> 41001
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41002
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFK14749

<400> 41002

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41003
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14756

<400> 41003
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug agaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41004
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14764

<400> 41004
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41005
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14779

<400> 41005
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41006
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14788

<400> 41006
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41007
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14798

<400> 41007
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuuagaaag 360

caauugagcu cagugucauc auuugaaagg guugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaacaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 41008
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14814

<400> 41008
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auaugaaagg uaugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcggg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41009
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14831

<400> 41009

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucagcg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41010
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14839

<400> 41010
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41011
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14847

<400> 41011
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagcgucauc auuugaaagg uaugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41012
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14868

<400> 41012
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41013
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14884

<400> 41013
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41014
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14892

<400> 41014
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41015
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14901

<400> 41015
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41016
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14910

<400> 41016
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41017
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14919

<400> 41017
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugau gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41018
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK14929

<400> 41018
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugau gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41019
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK25599

<400> 41019
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41020
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFK25601

<400> 41020

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu guguaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41021
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK25603

<400> 41021
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacucagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41022
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK25605

<400> 41022
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaagaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgauuu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41023
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74526

<400> 41023
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acuugaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41024
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74534

<400> 41024
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41025
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74544

<400> 41025
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41026
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74554

<400> 41026
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41027
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74564

<400> 41027

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41028
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74575

<400> 41028
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41029
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74585

<400> 41029
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaagg acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41030
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74595

<400> 41030
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acuugaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41031
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74605

<400> 41031
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41032
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74615

<400> 41032
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41033
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74625

<400> 41033
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41034
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74635

<400> 41034
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41035
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74645

<400> 41035
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41036
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74655

<400> 41036
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcuacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41037
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74665

<400> 41037
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcuacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41038
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFK74675

<400> 41038

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41039
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74685

<400> 41039
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41040
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74695

<400> 41040
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41041
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74705

<400> 41041
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41042
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74715

<400> 41042
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41043
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74725

<400> 41043
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41044
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74735

<400> 41044
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41045
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74745

<400> 41045

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41046
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74755

<400> 41046
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41047
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74765

<400> 41047
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41048
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74775

<400> 41048
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41049
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74785

<400> 41049
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41050
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74795

<400> 41050
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41051
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74805

<400> 41051
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41052
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74815

<400> 41052
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41053
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74825

<400> 41053
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41054
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74835

<400> 41054
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41055
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74845

<400> 41055
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41056
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFK74895

<400> 41056

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41057
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74905

<400> 41057
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41058
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74915

<400> 41058
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41059
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74925

<400> 41059
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagucccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41060
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74935

<400> 41060
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41061
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74945

<400> 41061
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41062
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74955

<400> 41062
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41063
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74965

<400> 41063

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41064
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74975

<400> 41064
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccuaaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcuaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41065
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74985

<400> 41065
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41066
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK74995

<400> 41066
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41067
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75005

<400> 41067
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41068
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75015

<400> 41068
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcuacag gauugaggaa ugucccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguguuua a 1701

<210> 41069
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75025

<400> 41069
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75035

<400> 41070
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41071
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75045

<400> 41071
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75055

<400> 41072
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41073
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75065

<400> 41073
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41074
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFK75075

<400> 41074

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41075
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75085

<400> 41075
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga guacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41076
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75095

<400> 41076
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga guacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41077
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK75105

<400> 41077
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK77857

<400> 41078
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagucaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41079
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK77867

<400> 41079
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK77877

<400> 41080
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41081
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK77887

<400> 41081

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK77897

<400> 41082
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucuau uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccaaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua acgauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggucuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaauua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41083
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK78028

<400> 41083
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccaaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua acgauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFK78187

<400> 41084
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41085
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM45476

<400> 41085
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacgga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM45487

<400> 41086
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaac 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accguuucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41087
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM45489

<400> 41087
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacgggacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM45494

<400> 41088
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccucuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41089
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM68954

<400> 41089
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacacuacu cgagaagaau 120

gugacaguga cacauucugu uaaccugcuc gaagacagcc acaacgggaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacucacu gcuuccagcg agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggagcaug uuauccagga gauuucaucg acuaugagga acugaaggag 360

caauugagcu caguaucauc auuagaaaga uucgaaauau uucccaagga aaguucaugg 420

cccaaccaca acacacucaa aggaguaaca gcaucaugcu cccauggggg aaaaagcagu 480

uuuuacagaa auuugcuaug gcugacgaaa acggaggacu cauacccaaa gcugagcaau 540

uccuauguga acaauaaagg gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

agcagugaug agcaacagag ucucuaucau aauguaaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acgggagauu caccccggaa auagcugcaa gacccaaagu aagaaaucaa 720

ccugggagga ugaacuauua cuggaccuug cuagaacccg gagacacaau aauauuugag 780

gcaacuggua aucuaauagc accaugguau gcuuucgcac ugaguagagg guuuggguc c 840

ggcaucauca ccucaaacgc gucaaugcau gaguguaaca cgaaguguca aacaccccag 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauaug ucaggaguac caaauugagg augguuacag gacuaagaaa caucccaucc 1020

auucaauuca gaggucuauu uggagccauu gcugguuuua uugagggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcagcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug aguaaagaau ucaacaacuu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuag uucuacugga aaaugaaagg acuuuggauu uccaugauuu aaaugugaag 1380

aaucuguacg agaaaguaaa aagccaauua aagaauaaug ccaaagaaau cggaaauggg 1440

uguuuugagu ucuaccacaa gugugacaau aaaugcaugg aaaguguaag aaaugggacu 1500

uaugauuauc caaaauauuc agaagaauca aaguugaaca gggaaaagau agauggagug 1560

aaauuggaau caauggggu guaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucucccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 41090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM68965

<400> 41090
augaagacua ucauugcuuu gagcuacauu uucugucagg uucucgccca aaaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaucgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggggucac ucagaauggg ggaagcuaug cuugcaaaag gggaccugau 480

aacaguuucu ucaguagacu gaacugguug uacaaaucag aaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacugu acauuugggg aguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guggaauaag caucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aaagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41091
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM68987

<400> 41091
augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaccuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucugau 480

aaaaguuucu ucaguagacu gaauugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaauuuu gacaaacugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFM71720

<400> 41092

augaagacua ucauugcuuu gagcuacauu uucugucugg uuuucgccca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caauaacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacguggcua ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgaucacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguuu 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41093
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71731

<400> 41093
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71754

<400> 41094
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugccc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41095
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71768

<400> 41095
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugccc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71791

<400> 41096
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug agcuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41097
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71824

<400> 41097
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41098
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71835

<400> 41098
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaauuuaa cagugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuuau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auauuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ugagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuucccuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41099
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71846

<400> 41099

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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgucuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 41100
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFM71857

<400> 41100
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41101
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71868

<400> 41101
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucagacua uaugcucaag cuucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71879

<400> 41102
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucagacua uaugcucaag cuucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauauagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41103
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71890

<400> 41103
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacacuacu cgagaagaau 120

gugacaguga cacauucugu uaaccugcuc gaagacagcc acaacgggaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacucacu gcuuccagcg agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggagcaug uuauccagga gauuucaucg acuaugagga acugaaggag 360

caauugagcu caguaucauc auuagaaaga uucgaaauau uucccaagga aaguucaugg 420

cccaaccaca acacacucaa aggaguaaca gcaucaugcu cccauggggg aaaaagcagu 480

uuuuacagaa auuugcuaug gcugacgaaa acggaggacu cauacccaaa gcugagcaau 540

uccuauguga acaauaaagg gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

agcagugaug agcaacagag ucucuaucau aauguaaaug cuuaugucuc uguagugucu 660

ucaaauuaua acaggagauu caccccggaa auagcugcaa gacccaaagu aagaaaucaa 720

ccugggagga ugaacuauua cuggaccuug cuagaacccg gagacacaau aauauuugag 780

gcaacuggua aucuaauagc accaugguau gcuuucgcac ugaguagagg guuuggguсc 840

ggcaucauca ccucaaacgc gucaaugcau gaguguaaca cgaaguguca aacaccccag 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauaug ucaggaguac caaauugagg augguuacag gacuaagaaa caucccaucc 1020

auucaauuca gaggucuauu uggagccauu gcugguuuua uugagggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcagcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug aguaaagaau ucaacaacuu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuag uucuacugga aaaugaaagg acuuuggauu uccacgauuu aaaugugaag 1380

aaucuguacg agaaaguaaa aagccaauua aagaauaaug ccaaagaaau cggaaauggg 1440

uguuuugagu ucuaccacaa gugugacaau aaaugcaugg aaaguguaag aaaugggacu 1500

uaugauuauc caaaauauuc agaagaauca aaguugaaca gggaaaagau agauggagug 1560

aaauuggaau caauggggu guaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 41104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71901

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacacuacu cgagaagaau 120

gugacaguga cacauucugu uaaccugcuc gaagacagcc acaacgggaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacucacu gcuuccagcg agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggagcaug uuauccagga gauuucaucg acuaugagga acugaaggag 360

caauugagcu caguaucauc auuagaaaga uucgaaauau uucccaagga aaguucaugg 420

cccaaccaca acacacucaa aggaguaaca gcaucaugcu cccauggggg aaaaagcagu 480

uuuuacagaa auuugcuaug gcugacgaaa acggaggacu cauacccaaa gcugagcaau 540

uccuauguga acaauaaagg gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

agcagugaug agcaacagag ucucuaucau aauguaaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acgggagauu caccccggaa auagcugcaa gacccaaagu aagaaaucaa 720

ccugggagga ugaacuauua cuggaccuug cuagaacccg gagacacaau aauauuugag 780

gcaacuggua aucuaauagc accaugguau gcuuucgcac ugaguagagg guuuggguc c 840

ggcaucauca ccucaaacgc gucaaugcau gaguguaaca cgaaguguca aacaccccag 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauaug ucaggaguac caaauugagg augguuacag gacuaagaaa caucccaucc 1020

auucaauuca gaggucuauu uggagccauu gcugguuuua uugagggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcagcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug aguaaagaau ucaacaacuu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuag uucuacugga aaaugaaagg acuuuggauu uccaugaucu aaaugugaag 1380

aaucuguacg agaaaguaaa aagccaauua aagaauaaug ccaaagaaau cggaaauggg 1440

uguuuugagu ucuaccacaa gugugacaau aaaugcaugg aaaguguaag aaaugggacu 1500

uaugauuauc caaaauauuc agaagaauca aaguugaaca gggaaaagau agauggagug 1560

aaauuggaau caauggggu guaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucuccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 41105
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71923

<400> 41105
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaua gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gguaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca gaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga aaucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71934

<400> 41106
augaagacua ucauugcuuu gagcuacauu uucugucugg uucuaggcca agaucuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaagg gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gguaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca gaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga aaucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41107
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71945

<400> 41107
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agacuuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuguu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cugggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcgcaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccacaaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71956

<400> 41108
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agacuuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuguu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcgcaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccacaaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41109
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM71978

<400> 41109
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ggaaaugaca acaacagcac agcaacgcug ugccugggac aucaugcggu gccaaacgga 120

acgcuaguga aaacaaucac gaaugaucag auugaaguga cuaaugcuac ugagcugguu 180

cagaguuccu caacggguaa aauaugcaac aauccucauc gaauccuuga uggaauaaac 240

ugcacacuga uagaugcucu auuggggggac ccucauugug auggauuuca aaaugagaaa 300

ugggaccuuu ucguugaacg cagcaaagcu uucagcaacu guuacccuua ugaugugcca 360

gauuaugccu cccuuagguc acuaguugcc ucgucaggca cucuggaguu uaucaaugaa 420

ggcuucaauu ggacuggggu cacucagaau gggggaagca augcuugcaa aagaggaccu 480

gauagcgguu uuuucaguag acugaacugg uuguacaaau caggaagcac auauccagug 540

caaaacguga ccaugccaaa caaugacaau ucugacaaac uauacauuug ggggguucac 600

cacccgagca cggacaaaga acaaaccaac cuauauguuc aagcaucagg gaaagucaca 660

gucuccacca agagaagcca gcaaacuaua aucccgaaug ucgggucuag acccugggua 720

aggggucugu cuaguagaau aagcaucuau uggacaauag uuaaaccggg agacauacug 780

guaauuaaua guaaugggaa ccuaauugcu ccucgggguu acuucaaaau gcgcacuggg 840

aaaagcucaa uaaugagguc agaugcaccu auuggcaccu gcagcucuga augcaucacu 900

ccaaauggaa gcauucccaa ugacaagccc uuucaaaacg uaaacaagau cacauauggg 960

gcauguccca aguauguuaa gcaaaacacu cugaaguugg caacagggau gcggaaugua 1020

ccagagaaac aaacuagagg cauauucggc gcaauagcag guuucauaga aaaugguugg 1080

gagggaauga uagacgguug guacgguuuc aggcaucaaa auuccgaggg cacaggacaa 1140

gcagcagauc uuaaaagcac ucaagcagcc aucgaccaaa ucaaugggaa acugaauagg 1200

guaaucgaga agacgaacga gaaauuccau caaaucgaaa aggaauucuc agaaguagaa 1260

gggagaauuc aggaccucga gaaauacguu gaagacacua aaauagaucu cuggucuuac 1320

aaugcggagc uucuugucgc ucuggagaac caacauacaa uugaucugac ugacucggaa 1380

augaacaaac uguuugaaaa aacaaggagg caacugaggg aaaaugcuga ggacaugggc 1440

aaugguugcu ucaaaauaua ccacaaaugu gacaaugcuu gcauaggguc aaucagaaau 1500

gggacuuaug accaugaugu auacagagac gaagcauuaa acaaccgguu ucagaucaaa 1560

gguguugaac ugaagucagg auacaaagac uggauccugu ggauuuccuu ugccauauca 1620

ugcuuuuugc uuuguguugu uuugcugggg uucaucaugu gggccugcca aaaaggcaac 1680

auuaggugca acauuugcau uuga 1704

<210> 41110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFM71989

<400> 41110

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acaaggacca aaucuuccug uauacucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41111
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72010

<400> 41111
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaucgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggggucac ucagaauggg ggaagcuaug cuugcaaaag gggaccugau 480

aaaaguuucu ucaguagacu gaacugguug uacgaaucag aaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacugu acauuugggg aguucaccac 600

ccgagcacgg acaaagaaca aaccaaacua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72021

<400> 41112
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugcaga 180

cuaaaaggaa uagccccacu acaauugggg aaaugcaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag aaaucauggu ccuacauugc agaaacacca 300

aacuccgaga auggaacaug uuacccagga uauuucgccg acuaugagga auugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaacaca acguaaccag aggcguaacg gcaucaugcu cccauaaggg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aaaaauggcu cguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagagg accaaaagac caucuaucgg aaagaaaaug cuuaugucuc uguagugucu 660

ucaaauuaua acaggagauu caccccagaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccauggcau gcuuucgcac ugaauagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucgauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuccag aauauacacc cagucacaau aggggagugc 960

ccaaaauacg ucaggaguac aaaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaagg 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugacuauc caaaauauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 41113
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72032

<400> 41113
augaagacua ucauugcuuu gagcuacaug uucugucugg uuuucgccca aaaccuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaggau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaua cuugcaaaag gggaucuaau 480

aacaguuucu ucaguagacu gaacugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gauucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauauucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaaacaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41114
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72043

<400> 41114
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguaggau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcucua cuugcaaaag gggaucuaau 480

aacaguuucu ucaguagacu gaacugguug uacgaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gauucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauauucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccccaggu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaaacaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41115
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72054

<400> 41115
augaaagcaa aacuacuggu ccuguuaugu gcacuuucag cuacagaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaauc acaacggaaa acuaugcaaa 180

cuaaaaggaa uagccccacu acaauuggggg aaaugcagca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag aaaucauggu ccuacauugc agaaacacca 300

aacuccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggaa 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaagga aaguucaugg 420

cccaaacaca acguaaccaa aggaguaacg gcagcaugcu cccauaaggg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aaaaauggcu cguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagagg accaaaagac caucuaucgu aaagaaaaug cuuaugucuc uguaguguc u 660

ucacauuaua acaggagauu caccccagaa auagcaaaaa gacccaaagu aagaaaucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucgauggau gaaugugacg cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuucag aauguacacc cagucacaau aggagagugc 960

ccaaaguacg ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggggg auggacugga 1080

augauugaug gaugguaugg uuaucaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuauaauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaacu agaaaaaagg 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuccugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aacuuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaaugggacu 1500

uaugacuauc caaaauauuc agaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucuccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 41116
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFM72065

<400> 41116
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaauc acaacggaaa acuaugcaaa 180

cuaaaaggaa uagccccacu acaauugggg aaaugcagca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag aaaucauggu ccuacauugc agaaacacca 300

aacuccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggaa 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaagga aaguucaugg 420

cccaaacaca acguaaccaa aggaguaacg gcagcaugcu cccauaaggg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aaaaauggcu cguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagagg accaaaagac caucuaucgu aaagaaaaug cuuaugucuc uguagugucu 660

ucacauuaua acaggagauu caccccagaa auagcaaaaa gacccaaagu aagaaaucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucgauggau gaaugugacg cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuucag aauguacacc cagucacaau aggagagugc 960

ccaaaguacg ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggggg auggacugga 1080

augauugaug gaugguaugg uuaucaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuauaauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaacu agaaaaaagg 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuccugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aacuuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaaugggacu 1500

uaugacuauc caaaauauuc agaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucuccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 41117
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFM72087

<400> 41117

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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuua uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaua cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug uacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg aaaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagucc augguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

uguccccaggu augucaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaagcu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa uauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41118
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72098

<400> 41118
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug uacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggucacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acggcuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41119
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72109

<400> 41119
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacaaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaucacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggca 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acggcuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acggaaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41120
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72120

<400> 41120
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caauaacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaucacgg acagagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg gguuuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuguug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg caaugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uugucgcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca agauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41121
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72131

<400> 41121
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaagacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga auggagucgc ucagaguggg gaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacgaaucag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagagaaca aaccaaacua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca ccgggaaccu aauugcuccu cgggguuacu ucaaaauacg aacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uccccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggca 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41122
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72142

<400> 41122
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguacag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg accgugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag augguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uucuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41123
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72153

<400> 41123
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga guugguucag 180

aguuccucaa cagguagaau augcggcagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caaugaagac 420

uucaauugga cuggagucgc ucaggauggg ggaagcuaug cuugcaaaag aggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguucgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucagucca guagaauagg caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acagaaucac auaugggggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauu gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72164

<400> 41124
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccccaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaagaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caacgaaaac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccua uauguccgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccggauaucg gguauagacc augguaagg 720

ggucagucca guagaauaag cauccauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagcu 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

gucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auucuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41125
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72175

<400> 41125
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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccccaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaagaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caacgaaaac 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcgcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuuggggg gguucaccac 600

ccgagcacgg acagugacca aaccaaccua uauguccgag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccggauaucg gguauagacc augguaagg 720

ggucagucca guagaauaag cauccauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagcu 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

gucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auucuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72197

<400> 41126
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcuaug cuugcaaaag gagaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgauuacgg acagugaaca aaccagcuua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauauagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uuccuaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 41127
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72208

<400> 41127
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagaccca cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aacaguuucu uuaguagauu gaauugguug caccaauuaa aauacagaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauacccaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauccagacc cuggguaagg 720

gguaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc auuaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41128
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFM72219

<400> 41128

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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagaccca cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aacaguuucu uuaguagauu gaauugguug caccaauuaa aauacagaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauacccaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauccagacc cuggguaagg 720

gguaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaaaagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc auuauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41129
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72230

<400> 41129
augaaagcaa aacuacuggu ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag aaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaaccugggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uuugcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41130
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72246

<400> 41130
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcaguguc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcaua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagccc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41131
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72257

<400> 41131
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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa auuacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcaua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcggaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu uuaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41132
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72268

<400> 41132
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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa auuacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaauacgg acagugacca aaucagcaua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcggaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu uuaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucuaug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41133
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72279

<400> 41133
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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc uaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcaua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuaaaca cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41134
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72290

<400> 41134
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guaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc uaacggaacg 120

cuagugaaaa caaucacgaa ugaccacauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aagacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcaua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuaaaca cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaaa ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa caaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41135
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72301

<400> 41135

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccaauuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauauagacc caggguaagg 720

gauaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagagucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41136
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72312

<400> 41136
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acagugacca aaucaaccua uaugcucaag caucaggaag aaucacaguu 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauauagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaga cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgaaaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41137
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72323

<400> 41137
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acagugacca aaucaaccua uaugcucaag caucaggaag aaucacaguu 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauauagacc caggguaagg 720

gauaacccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaga cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgaaaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41138
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72334

<400> 41138
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgu acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuucaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41139
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72345

<400> 41139
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguacag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acagugacca aaucagccua uauacucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauuuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auuccgaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41140
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72356

<400> 41140
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucaaccua uauguucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuagcagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41141
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72367

<400> 41141
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucaaccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gauguccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuagcagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuaa aaagcacuca agcagcaauc aaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41142
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72378

<400> 41142
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccaauuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauauagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca ggcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41143
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72389

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauauagacc cagaguaagg 720

aauaacccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca ggcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41144
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72400

<400> 41144
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauuccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41145
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72411

<400> 41145
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccaaucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauuccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg acuucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41146
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFM72422

<400> 41146

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauuuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auaugcugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41147
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72433

<400> 41147
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauuuagacc cagaguaagg 720

aauaacccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auaugcugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72444

<400> 41148
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuacug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauuuagacc cagaguaagg 720

aauaacccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auaugcugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41149
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72455

<400> 41149
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccaauuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauuuagacc cagaguaagg 720

aauaacccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auaugcugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72466

<400> 41150
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauuuagacc cagaguaagg 720

aauaacccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auaugcugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41151
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72488

<400> 41151
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccaauuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugaaca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gauuuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuaaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72499

<400> 41152
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccaauuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41153
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72521

<400> 41153

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaag acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc acuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac ugaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41154
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72532

<400> 41154
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaag acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc acuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41155
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72543

<400> 41155
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaag acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc acuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41156
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72554

<400> 41156
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaag acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc acuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguugaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga ugaagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41157
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72565

<400> 41157
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72576

<400> 41158
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcauaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aaccguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41159
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72799

<400> 41159
augaaaguaa aacuacuggu ccuauuaugc acauuuacag cuacauaugc ggacacaaua 60

uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa aagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcggauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcuguaggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41160
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72810

<400> 41160
augaaaguaa aacuacuggu ccuauuaugc acauuuacag cuacauaugc ggacacaaua 60

uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa aagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcggauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcuguaggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41161
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72821

<400> 41161
augaaaguaa aacuacuggu ccuauuaugc acauuuacag cuacauaugc ggacacaaua 60

uguaucggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaacc acaauggaaa acuaugucua 180

uuaaaaggaa aagccccauu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcggauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggga aagcagcuuu 480

uacaaaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaugacccu cuaucauaaa gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agaaugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaccag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aagaugaaca cucaauucac agcuguaggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugacggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

uuguaugaga aaguaaaaaa ccaauuaaaa aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gauuauccaa aauauuccga agaaucaaag uuaagcaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72852

<400> 41162
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagacguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41163
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72862

<400> 41163
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagacguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41164
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFM72872

<400> 41164

augaagacua ucauugcuuu gagcuacacu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41165
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72883

<400> 41165
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acucacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua ccagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaaugca aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41166
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72894

<400> 41166
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acucaauuaa acuucaaaua cccagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaaugca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41167
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72916

<400> 41167
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg uuccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41168
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72927

<400> 41168
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaccucccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca uagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41169
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72938

<400> 41169
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaccucccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaacccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca uagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41170
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72949

<400> 41170
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccaauuaa aauucaaaua cccagcauua 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaccucccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaacccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca uagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41171
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72960

<400> 41171

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaagugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaccucccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca uagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72971

<400> 41172
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaagugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccaauuaa acuucaaaua cccagcauua 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaccucccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca uagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41173
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72982

<400> 41173
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaauuuaa cagugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auauuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ugagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuucccuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72993

<400> 41174
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaaua gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcccuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgu acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41175
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM73004

<400> 41175
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaaua gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcccuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgu acaaggacca aaucuuccug uaugcucaag caucaggaag agucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuuucuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41176
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM73015

<400> 41176
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaauua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41177
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM73025

<400> 41177
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ucauccaucu 600

acuacugaug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaauua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41178
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM73035

<400> 41178
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ucauccaucu 600

acuacugaug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaauua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41179
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM73045

<400> 41179
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41180
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM73055

<400> 41180
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguugaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41181
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM73065

<400> 41181
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41182
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFM73477

<400> 41182

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugcaga 180

cuaaaaggaa uagccccacu acaauugggg aaaugcaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag aaaucauggu ccuacauugc agaaacacca 300

aacuccgaga auggaacaug uuacccagga uauuucgccg acuaugagga auugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaacaca acguaaccag aggcguaacg gcaucaugcu cccauaaggg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aaaaauggcu cguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagagg accaaaagac caucuaucgg aaagaaaaug cuuaugucuc uguaugugcu 660

ucaaauuaua acaggagauu caccccagaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccauggcau gcuuucgcac ugaauagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucgauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuccag aauauacacc cagucacaau aggggagugc 960

ccaaaauacg ucaggaguac aaaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaagg 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugacuauc caaaauauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 41183
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM78567

<400> 41183
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auugguuacc augcaaacaa uucaacagag cagguugaca caaucaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauucau caauguaccg gaauggucuu acauagugga gaaggccaau 300

ccaaccaaug accucuguua cccagggagu uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu caaaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggagu gagcucagca uguccauacc ugggaagucc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaaaagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggaa uucaccaucc uaaugaugcg 600

gcagagcaga caaggcuaua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccuaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugca acagggcuca gaaauagccc ucaaagagag 1020

agcagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccauagca augagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa agucaacuca 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uucuagaugu cuggacuuau 1320

aaugccgaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

guuaagaacc ucuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uauaagaaac 1500

ggaacguaca acuauccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

gggguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

aguucccuag cacuggcaau caugauggcu ggucuaucuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 41184
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM78646

<400> 41184
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaagg ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41185
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM85179

<400> 41185
augaaaguaa aacuacugau ccuguuaugu acauuuacag cuacauaugc ugacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gagaacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccccu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu auacuauggg guguucauca cccgccaaac 600

auaggggacc aaaggacccu cuauuauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaucu caaaugcacc aauggaugaa ugugacgcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccguccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucaa aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaacgc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuuga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugaugga uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc acgacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41186
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN11846

<400> 41186
augaagacua ucauugcuuu gagcuacauu uuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggauggg aaaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acagugacca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cugggugagg 720

gguaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac guaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acggcuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuggguuuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41187
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17371

<400> 41187
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41188
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17381

<400> 41188
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41189
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17391

<400> 41189

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41190
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17401

<400> 41190
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41191
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17411

<400> 41191
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41192
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17421

<400> 41192
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41193
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17431

<400> 41193
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cacaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

accagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucugucauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41194
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17441

<400> 41194
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccaaagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41195
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17451

<400> 41195
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41196
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17467

<400> 41196
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41197
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17477

<400> 41197
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41198
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17487

<400> 41198
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccaccg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41199
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17497

<400> 41199
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41200
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN17507

<400> 41200

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41201
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17517

<400> 41201
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41202
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17527

<400> 41202
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41203
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17537

<400> 41203
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41204
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17547

<400> 41204
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41205
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17557

<400> 41205
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aucucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41206
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17567

<400> 41206
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41207
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17574

<400> 41207

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41208
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17580

<400> 41208
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41209
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17586

<400> 41209
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41210
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17595

<400> 41210
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41211
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17605

<400> 41211
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41212
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17615

<400> 41212
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41213
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17625

<400> 41213
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41214
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17635

<400> 41214
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41215
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17645

<400> 41215
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg guugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41216
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17655

<400> 41216
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41217
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17665

<400> 41217
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41218
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN17675

<400> 41218

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcgaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41219
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17685

<400> 41219
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccga gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41220
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17695

<400> 41220
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41221
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17705

<400> 41221
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg uuggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41222
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17715

<400> 41222
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggguucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41223
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17725

<400> 41223
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gaccccaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41224
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17735

<400> 41224
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41225
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17742

<400> 41225

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41226
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17748

<400> 41226
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu agaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41227
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17757

<400> 41227
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41228
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17767

<400> 41228
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggguucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41229
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17774

<400> 41229
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41230
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17783

<400> 41230
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41231
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17793

<400> 41231
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggguucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41232
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17803

<400> 41232
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41233
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17813

<400> 41233
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41234
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17823

<400> 41234
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcgaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau gggguauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41235
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17833

<400> 41235
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cuaaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41236
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN17843

<400> 41236

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41237
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17853

<400> 41237
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41238
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17863

<400> 41238
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41239
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17873

<400> 41239
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca ggcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acuugaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41240
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17883

<400> 41240
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacucaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41241
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17893

<400> 41241
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41242
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17903

<400> 41242
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacguua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41243
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17919

<400> 41243

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggagcaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41244
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17929

<400> 41244
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41245
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17939

<400> 41245
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

gguucuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41246
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17949

<400> 41246
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41247
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17959

<400> 41247
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacguua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacaggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41248
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17969

<400> 41248
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga auggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41249
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17979

<400> 41249
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41250
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17989

<400> 41250
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

ggaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41251
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN17999

<400> 41251
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41252
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18019

<400> 41252
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaagc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41253
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18039

<400> 41253
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41254
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18049

<400> 41254

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41255
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18059

<400> 41255
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cguauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac gcgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu ugccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41256
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18078

<400> 41256
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41257
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18088

<400> 41257
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 41258
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18098

<400> 41258
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcag uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41259
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18105

<400> 41259
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaauuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41260
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18107

<400> 41260
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41261
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18117

<400> 41261

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac gcgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41262
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18119

<400> 41262
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41263
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18121

<400> 41263
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaagaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41264
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18133

<400> 41264
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac gcgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41265
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18135

<400> 41265
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

gguucuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41266
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18137

<400> 41266
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41267
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18139

<400> 41267
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaagg ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaucugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41268
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18141

<400> 41268
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaagaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41269
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18148

<400> 41269
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41270
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18155

<400> 41270
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41271
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18157

<400> 41271
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41272
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18159

<400> 41272

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg aucaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41273
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18164

<400> 41273
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaauagu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucaaauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagc ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcggucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41274
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18171

<400> 41274
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auagcgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaaagug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagucaaa gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41275
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18176

<400> 41275
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu ggaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggag auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41276
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18183

<400> 41276
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcaucugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaauggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaauggaacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41277
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18195

<400> 41277
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41278
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18200

<400> 41278
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41279
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18207

<400> 41279

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa guuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41280
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18214

<400> 41280
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauua gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa agucgaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41281
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18224

<400> 41281
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41282
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18231

<400> 41282
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41283
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18233

<400> 41283
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaggaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41284
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18243

<400> 41284
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41285
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18245

<400> 41285
augaaggcaa uacuaguagu ucugcuauau auauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguucugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41286
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18255

<400> 41286
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41287
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18260

<400> 41287
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41288
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18267

<400> 41288
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41289
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18269

<400> 41289
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41290
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18271

<400> 41290

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uguauagguu aucaugcgaa caauucaaca gacacugugg acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41291
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18273

<400> 41291
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41292
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18280

<400> 41292
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41293
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18303

<400> 41293
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug aucaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41294
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18305

<400> 41294
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu gggaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41295
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18307

<400> 41295
augaaggcaa uacuaguagu ucugcuauau acauuugcag ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41296
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18312

<400> 41296
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uaaucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41297
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18319

<400> 41297

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucauacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41298
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18324

<400> 41298
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguga cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41299
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18334

<400> 41299
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc ugaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41300
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18344

<400> 41300
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41301
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18354

<400> 41301
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41302
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18364

<400> 41302
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acuugaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41303
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18374

<400> 41303
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41304
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18381

<400> 41304
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccaa gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41305
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18390

<400> 41305
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagauaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41306
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18400

<400> 41306
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccaaagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uguuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41307
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18410

<400> 41307
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguagu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 41308
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18420

<400> 41308

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41309
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18430

<400> 41309
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaaggaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41310
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18440

<400> 41310
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41311
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18450

<400> 41311
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41312
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18460

<400> 41312
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41313
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18470

<400> 41313
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41314
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18480

<400> 41314
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41315
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18490

<400> 41315

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41316
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18497

<400> 41316
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41317
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18512

<400> 41317
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41318
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18519

<400> 41318
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41319
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18521

<400> 41319
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc aggggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41320
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18528

<400> 41320
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41321
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18531

<400> 41321
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41322
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18543

<400> 41322
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41323
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18545

<400> 41323
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuagugau accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41324
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18550

<400> 41324
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41325
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18557

<400> 41325
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41326
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18559

<400> 41326

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaaa ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41327
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18561

<400> 41327
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41328
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18563

<400> 41328
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41329
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18565

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auggagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41330
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18570

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagua agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41331
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18580

<400> 41331
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41332
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18590

<400> 41332
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug agaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41333
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18600

<400> 41333

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaaa ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac gcgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41334
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18610

<400> 41334
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 41335
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18617

<400> 41335
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagag ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaaa gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41336
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18622

<400> 41336
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41337
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18629

<400> 41337
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41338
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18634

<400> 41338
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41339
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18644

<400> 41339
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagag ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagguga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41340
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18654

<400> 41340
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41341
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18664

<400> 41341
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41342
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18674

<400> 41342
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41343
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18684

<400> 41343
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41344
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18694

<400> 41344

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41345
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18704

<400> 41345
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagag ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41346
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18714

<400> 41346
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41347
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18721

<400> 41347
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41348
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18725

<400> 41348
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41349
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18735

<400> 41349
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa cuuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41350
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18742

<400> 41350
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41351
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18747

<400> 41351

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41352
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18757

<400> 41352
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuagcggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41353
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18767

<400> 41353
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41354
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18774

<400> 41354
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagag ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41355
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18776

<400> 41355
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaacuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41356
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18778

<400> 41356
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41357
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18784

<400> 41357
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcggua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41358
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18789

<400> 41358
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41359
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18799

<400> 41359
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41360
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18809

<400> 41360
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41361
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18816

<400> 41361
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41362
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18818

<400> 41362

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41363
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18820

<400> 41363
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aacuguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41364
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18822

<400> 41364
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41365
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18824

<400> 41365
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaacuaaaca gagaagaaau agaugggggua 1560

aggcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41366
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18826

<400> 41366
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41367
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18828

<400> 41367
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacauca 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcau aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41368
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18830

<400> 41368
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuagcggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41369
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18832

<400> 41369

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41370
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18834

<400> 41370
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41371
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18849

<400> 41371
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aauguagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41372
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18856

<400> 41372
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41373
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18858

<400> 41373
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 41374
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18860

<400> 41374
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa uggacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41375
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18865

<400> 41375
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41376
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18875

<400> 41376
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug cccaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41377
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18885

<400> 41377
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccaaccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gacugaggaa uguccccgucu 1020

acucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguaaaa uauguauuua a 1701

<210> 41378
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18892

<400> 41378
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41379
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18894

<400> 41379
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41380
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN18903

<400> 41380

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagag ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41381
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18910

<400> 41381
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacuguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41382
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18912

<400> 41382
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41383
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18917

<400> 41383
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacuguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaggca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18927

<400> 41384
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41385
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18937

<400> 41385
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41386
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18952

<400> 41386
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacaggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacguucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41387
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18957

<400> 41387

augaaggcaa uacuaguagu ucugcuauau acauucgcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaauc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu ccgugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau ggcuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18964

<400> 41388
augaaggcaa uacuaguagu ucugcuauau auauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguucugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41389
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18974

<400> 41389
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcugguug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu caaugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaaaaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaugaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41390
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18979

<400> 41390
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41391
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18982

<400> 41391
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18984

<400> 41392
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18986

<400> 41393
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18988

<400> 41394
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugagaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

caguguagaa uauguauuua a 1701

<210> 41395
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18993

<400> 41395
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguga cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cacaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauuaga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN18999

<400> 41396
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaaguac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41397
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19006

<400> 41397
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gacuugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19026

<400> 41398

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41399
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19036

<400> 41399
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacauccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41400
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19043

<400> 41400
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41401
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19053

<400> 41401
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19063

<400> 41402
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19070

<400> 41403
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19076

<400> 41404
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaaggau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41405
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19082

<400> 41405

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19088

<400> 41406
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41407
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19097

<400> 41407
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19104

<400> 41408
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41409
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19113

<400> 41409
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41410
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19119

<400> 41410
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41411
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19125

<400> 41411
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19134

<400> 41412
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41413
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19144

<400> 41413
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19154

<400> 41414
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41415
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19164

<400> 41415
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19174

<400> 41416

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41417
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19184

<400> 41417
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19194

<400> 41418
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41419
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19203

<400> 41419
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41420
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19213

<400> 41420
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19223

<400> 41421
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19233

<400> 41422
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41423
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19243

<400> 41423

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccaa gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19250

<400> 41424
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41425
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19259

<400> 41425
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19269

<400> 41426
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41427
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19279

<400> 41427
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19286

<400> 41428
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa ugguaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41429
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19295

<400> 41429
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19305

<400> 41430
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41431
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19315

<400> 41431
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19325

<400> 41432
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41433
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19335

<400> 41433
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19344

<400> 41434

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuguugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41435
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19351

<400> 41435
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacguu 1680

aggugcaaca uuugcauuug a 1701

<210> 41436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19355

<400> 41436
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41437
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19357

<400> 41437
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19361

<400> 41438
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19363

<400> 41439
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaga caaucacgaa ugaccaaauu gaaguuacua augccacuga gcugguucag 180

auuuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19365

<400> 41440
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugguag augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41441
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19367

<400> 41441

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19369

<400> 41442
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41443
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19373

<400> 41443
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19375

<400> 41444
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41445
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19377

<400> 41445
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa uggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19379

<400> 41446
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19381

<400> 41447
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19383

<400> 41448
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc caggauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggа cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca acgggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19385

<400> 41449
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagauaucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19387

<400> 41450
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41451
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19389

<400> 41451
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcuaugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19391

<400> 41452

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41453
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19393

<400> 41453
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaagca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19397

<400> 41454
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41455
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19399

<400> 41455
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19401

<400> 41456
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41457
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19403

<400> 41457
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19405

<400> 41458
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagagaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41459
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19407

<400> 41459

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggu cuggagucac ucaaaacgga acaaguucug cuugcaugag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaguuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19409

<400> 41460
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ggaaaugaca acagcacggc aacgcugugc cuuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19411

<400> 41461
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19413

<400> 41462
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41463
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19415

<400> 41463
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaguaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19417

<400> 41464
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucuggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auaaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19423

<400> 41465
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19425

<400> 41466
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaguacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19437

<400> 41467
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucagaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auaggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19439

<400> 41468
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gaaaaugaca acagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aauaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuacaaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19443

<400> 41469
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauagcuucu uuaguagauu aaauugguug acucacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc caggauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga ucuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19445

<400> 41470

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccuaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug agauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19447

<400> 41471
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19451

<400> 41472
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaugga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuucauuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41473
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19453

<400> 41473
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaagugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca ggucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19455

<400> 41474
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuacga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41475
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19457

<400> 41475
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagaccca cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg gagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19459

<400> 41476
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41477
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19461

<400> 41477

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauagcuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga ggucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19465

<400> 41478
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uauaggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19467

<400> 41479
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19469

<400> 41480
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaagugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca ggucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41481
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19471

<400> 41481
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcguug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19473

<400> 41482
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcggcagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaaucguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga uaaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19475

<400> 41483
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19477

<400> 41484
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uacuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19479

<400> 41485
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gugucgcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19483

<400> 41486
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ggaaaugaca auagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19485

<400> 41487
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19487

<400> 41488

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19491

<400> 41489
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacgggacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauccagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga ggucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19493

<400> 41490
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauagcuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19495

<400> 41491
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19497

<400> 41492
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41493
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19499

<400> 41493
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19501

<400> 41494
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41495
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19503

<400> 41495

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19507

<400> 41496
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19509

<400> 41497
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFN19513

<400> 41498
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaua uuugcauuug a 1701

<210> 41499
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19515

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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19517

<400> 41500
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19519

<400> 41501
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19521

<400> 41502
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41503
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19523

<400> 41503
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19527

<400> 41504
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuucauuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41505
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19529

<400> 41505
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuucauuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19531

<400> 41506

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca agagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19533

<400> 41507
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19535

<400> 41508
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41509
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19537

<400> 41509
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccugugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19539

<400> 41510
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucuggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auaaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41511
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19543

<400> 41511
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19545

<400> 41512
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ggaagugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuucaaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu auccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41513
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19547

<400> 41513

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFN19549

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa aaggugaaau augcaacagu ccucaucaga uccuugaugg aggaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg acauugagaa auauguugag gacacuaaga uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFN19551

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFN19553

<400> 41516
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41517
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19555

<400> 41517
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFN19557

<400> 41518
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaaucguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga uaaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41519
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19559

<400> 41519
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccuaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19561

<400> 41520
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaagugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca ggucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19563

<400> 41521
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuacga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggaacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19565

<400> 41522
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauagcuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc caggauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaccucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga ucuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41523
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19567

<400> 41523
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cugggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca uaaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19569

<400> 41524

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41525
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19571

<400> 41525
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac acaaaacgga acaagcucug cuugcauaag gagauccaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uauucucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuua 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucagaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacgggccc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuacagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gacauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19573

<400> 41526
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguucuucaa cagguaaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cucagcauug 540

aacgugacua ugccgaacaa ggaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucucccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa ggagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu agggguuacu ucaaaaugca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguga acagaaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa guuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19575

<400> 41527
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacaau ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg ggucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa agccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19577

<400> 41528
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41529
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19579

<400> 41529
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41530
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 41530
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41531
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 41531

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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19587

<400> 41532
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca cgaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaacuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41533
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 41533
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19591

<400> 41534
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcaugag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg ggucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa uggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41535
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19593

<400> 41535
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19595

<400> 41536
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19599

<400> 41537
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuuggccacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19601

<400> 41538
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19607

<400> 41539
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19609

<400> 41540
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19611

<400> 41541
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguag aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19613

<400> 41542

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41543
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19617

<400> 41543
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauagcuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccua uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19619

<400> 41544
augaagacua ucauugcuuu gagccacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuaaacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19623

<400> 41545
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuucauuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19629

<400> 41546
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auaugucgag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19631

<400> 41547
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gaaaaugacu acagcacggc aacgcugugu cuugggcauc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aauaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uguuccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuacu 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuacaaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuuu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19633

<400> 41548
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacaaua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41549
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19635

<400> 41549

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gaaaaugaca acagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aauaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuacaaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19637

<400> 41550
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aauaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuacaaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19639

<400> 41551
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19641

<400> 41552
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuucauuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41553
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19643

<400> 41553
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aauaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuacaaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19645

<400> 41554
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19647

<400> 41555
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aguaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaagucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19649

<400> 41556
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaagugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19653

<400> 41557
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aauaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuacaaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaguu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19663

<400> 41558
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19665

<400> 41559
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaga uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca ggucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19667

<400> 41560

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcaugag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19669

<400> 41561
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccgaau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcaugag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcccaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19671

<400> 41562
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagaaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19674

<400> 41563
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19676

<400> 41564
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19678

<400> 41565
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacgga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaagugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca ggucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19682

<400> 41566
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccccaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccgaau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcaugag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcccaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 41567
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19684

<400> 41567

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19686

<400> 41568
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauauacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41569
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19688

<400> 41569
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca agaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19690

<400> 41570
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugcauca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaucuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41571
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19692

<400> 41571
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucggggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19694

<400> 41572
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccccaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugcauca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41573
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19700

<400> 41573
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaga 420

uucaauuggu cuggagucac ucaaaacgga acaaguucug cuugcaugag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaguuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agccguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaacga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19702

<400> 41574
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgagg caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41575
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19709

<400> 41575
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19719

<400> 41576
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aacccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41577
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19730

<400> 41577
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagucu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19736

<400> 41578

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41579
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19748

<400> 41579
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa acaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac gccaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19757

<400> 41580
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41581
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19768

<400> 41581
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaagugaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19781

<400> 41582
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguca cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcag uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19791

<400> 41583
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuccua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcugu ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaauu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgauuu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19806

<400> 41584
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41585
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19808

<400> 41585

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ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca aacucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auucgaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaacagcac caaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaggugag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41586
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19814

<400> 41586
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccgucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuucgaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41587
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19816

<400> 41587
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19821

<400> 41588
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguga cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu aaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gaggcaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41589
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19831

<400> 41589
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguga cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaagg 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19849

<400> 41590
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggagacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgauau auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19865

<400> 41591
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac acuaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19875

<400> 41592
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacugugg acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuuuu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19895

<400> 41593
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaagaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaguaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19905

<400> 41594
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accgguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccguugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19915

<400> 41595
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcagc 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucagaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN19922

<400> 41596

augaaggcaa uacuaguagu ugugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaga 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccaa gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac guacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19931

<400> 41597
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggu 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauuug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaacgugaag 1380

aacuuauaug aaaaggugag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41598
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19941

<400> 41598
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

auuucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cggugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41599
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19951

<400> 41599
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41600
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19966

<400> 41600
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41601
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19972

<400> 41601
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auaaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguagu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19978

<400> 41602
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41603
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19983

<400> 41603

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN19993

<400> 41604
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41605
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20000

<400> 41605
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20006

<400> 41606
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacaaua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac caaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41607
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20012

<400> 41607
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20018

<400> 41608
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41609
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20019

<400> 41609
augaaagcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau cggaaauggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20021

<400> 41610
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acaugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41611
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20034

<400> 41611
augaaagcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20040

<400> 41612
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41613
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20046

<400> 41613
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN20052

<400> 41614

augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu agaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau cgauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41615
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20061

<400> 41615
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccgucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuucgaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20076

<400> 41616
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagauu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41617
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20081

<400> 41617
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuagugau accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaagaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaguaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20092

<400> 41618
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu agaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaucugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau cgauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20099

<400> 41619
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

auuucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cggugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN20112

<400> 41620
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu guaaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaua acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aacggaaauu cauacccaaa gcucaacaca 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcgggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 41621
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87924

<400> 41621

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuauauua augauaaaag gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcgggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugaac agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87926

<400> 41622
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggagau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uggucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87927

<400> 41623
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucguc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaag gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagguac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acagaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87928

<400> 41624
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg cagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41625
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87929

<400> 41625
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87930

<400> 41626
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugaac aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87931

<400> 41627
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagaaaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag uaucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87932

<400> 41628
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugccgg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87933

<400> 41629
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87934

<400> 41630
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcaguugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41631
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87936

<400> 41631
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcgggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggau uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFN87938

<400> 41632

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auccgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacauccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41633
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87939

<400> 41633
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87941

<400> 41634
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41635
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87943

<400> 41635
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcgggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87945

<400> 41636
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacaguag acacuguacu agaaaagaau 120

gugacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaua auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41637
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87947

<400> 41637
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41638
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87949

<400> 41638
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggauuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41639
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87951

<400> 41639

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41640
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87953

<400> 41640
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug accugaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauaca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauauggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aauuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41641
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87955

<400> 41641
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuccua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41642
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87957

<400> 41642
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucgcaa uggaaagaaa ugcgggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucuc gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac aagugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41643
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87959

<400> 41643
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41644
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFN87961

<400> 41644
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug guuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41645
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64802

<400> 41645
augaaagcaa aacuacuagu ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuucuaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucggca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aauggcuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagggaa agaaguccuu guacuauggg guguucauca cccgucuaac 600

auaagggacc aaagggccau cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

auagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugaugga uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguac uacuggaaaa ugaaaggacu uuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41646
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64813

<400> 41646
augaaagcaa aacuacuagu ccuguuaugu gcauuuacag cuacagaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugaaaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa gcuaugucga 180

cuaaaaggaa uagccccacu acaauugggu aauugcagca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag aaaucauggu ccuacauugc agaaacacca 300

aacuccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccaa aggaguaacg gcaucaugcu cccauaaggg gagaagcagu 480

uuuuacagaa auuugcuaug gcuaacggag aagaauggcu cguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauaaggg accaaagggc caucuaucau acagaaaaug cuuaugucuc uguaugugucu 660

ucacauuaua acaggagauu caccccagaa auagcaaaaa gacccaaagu aagagaucaa 720

gaaggaagga uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaaugc aucaauggau gaaugugacg cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugc 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugug ggcaaagaau ucaacaaauu agaaagaagg 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cgaggaauca aaauuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucuccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 41647
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64824

<400> 41647
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugaaaagaac 120

gugacaguga cacauucugu caaccuacuu gaggacaguc acaacggaaa acuaugucga 180

cuaaaaggaa uagccccacu acaauugggu aauugcagca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag aaaucauggu ccuacauugc agaaacacca 300

aacuccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccaa aggaguaacg gcaucaugcu cccauaaggg gagaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aagaauggcu uguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagggg accaaagggc caucuaucau acagaaaaug cuuaugucuc uguaguguc u 660

ucacauuaua acaggagauu caccccagaa auagcaaaaa gacccaaagu cagaggucaa 720

gaaggaagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggauca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugacg cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugc 960

ccaaaguaug ucaggaguac aaaauuaaag augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugug ggcaaagaau ucaacaaauu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauua aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc ccaaauauuc cgaggaauca aaauuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcauuug a 1701

<210> 41648
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64835

<400> 41648
augaaagcaa aacuacuagu ccuguuaugu gcauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugucga 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

gacccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaagga aagcucaugg 420

cccaaccaca ccguaaccaa aggaguaacg gcaucaugcu cccauaaugg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacgaag aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagggg aacaaagggc caucuaucau acagaaaaug cuuaugucuc uguaugugucu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagagaucaa 720

gaaggaagaa ucaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguac gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucaauggau gagugugacg cuaaguguca aacaccccaa 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaccaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugua ggcaaagaau ucaacaaauu agaaagaagg 1260

auggaaaacu uaaauaagaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuccugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauug aagaauaaug ccaaagaaau agggaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cgaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucuccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 41649
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64846

<400> 41649
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugucga 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuacuaag gaaucauggu ccuacauugc agaaacucca 300

aacccugaga auggaacaug uuacccaggg uauuucgcag acuaugaaga acugagggag 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaacuaa aggaguaacg gcaucaugcu cccauaaugg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacaugggg accaaagggc caucuaucau acagaaaaug cuuauguuuc uguagugucu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagaggucaa 720

gaaggaagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaagguau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugacg cgaaguguca aacaccccaa 900

ggagcuauaa acaguagucu uccuuuccag aacguacacc cagucacaau aggagagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaccaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugug ggcaaagaau ucaacaaauu agaaagaagg 1260

auggaaaacu ugaacaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaacug aagaauaaug ccaaagaaau agggaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cgaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucuccu gggggcaauc agcuucugga ugugcucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 41650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFO64857

<400> 41650

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugccga 180

cuaaaaggaa cagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagcucaugg 420

cccaaccaca ccguaaccaa aggagugacg gcaucaugcu cccauaaugg gaaaagcagu 480

uuuuacaaaa auuugcuaug gcugacggaa aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaacaagga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagggg accaaagggc caucuaucau acagaaaaug cuuaugucuc uguaugugcu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagaggucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguac gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaccgc aucaaugggu gaaugugacg cuaaguguca aacaccccaa 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugu 960

cccaaguaug ucaggaguac aaaauuaagg augguuacag gacuaagaaa caucccaucc 1020

auucaaucua gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugca 1140

gaccaaaaaa gcacacaaaa ugccauugau gggauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugua ggcaaagaau ucaacaaauu agagagaagg 1260

auggaaaacu uaaauaagaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaguuguugg uucuccugga aaauggaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauug aagaauaaug ccaaagaaau cgggaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cgaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 41651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64868

<400> 41651
augaaaguaa aacuacuagu ccuguugugu gcauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugccga 180

cuaaaaggaa cagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacccugaga auggaacaug uuacccaggg uguuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagcucaugg 420

cccaaccaca ccguaaccaa aggagugacg gcaucaugcu cccauaaugg gaaaagcagu 480

uuuuacaaaa auuuacuaug gcugacggaa aagaauggcu uguacccaaa ccugagcaag 540

uccuauguaa acaacaagga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauaaggg accaaagggc caucuaucau acagaaaaug cuuaugucuc uguaugugucu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagaggucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucaaugggu gaaugugacg cuaaguguca aacaccccaa 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugu 960

cccaaguaug ucaggaguac aaaauuaagg augguuacag gacuaagaaa caucccaucc 1020

auucaaucua gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaccau cagaaugaac aaggaucugg cuaugcugca 1140

gaccaaaaaa gcacacaaaa ugccauugau gggauuacaa acaaggugaa uucuguaauu 1200

gagaaaauga acacucaauu cacagcugua ggcaaagaau ucaacaaauu agagagaagg 1260

auggaaaacu uaaauaagaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaguuguugg uucuucugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauug aagaauaaug ccaaagaaau cgggaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cgaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggcgu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 41652
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64879

<400> 41652
augaaagcaa aacuacuagu ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuuuuaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucggca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aauggcuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgucuaac 600

auaagggacc aaagggccau cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gcaaaaagac ccaaaguaag aggucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc cuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

auagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagac 1140

caaaaaagca cacaaaaugc uauuaacggg aucacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugaugga uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcua aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa ugggacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41653
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64890

<400> 41653
augaaagcaa aacuacuagu ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuucuaag gaaucauggu ccuacauugu agagacacca 300

aacccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucggca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aauggcuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgucuaac 600

auaagggacc aaagggccau cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gcaaaaagac ccaaaguaag aggucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu ugggucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugauguga agugucagac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

auagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugaugga uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO64901

<400> 41654
augaaagcaa aacuacuagu ccuguugugu gcauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcgaa caauucaacu gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugccga 180

cuaaaaggaa cagccccacu acaauugggu aauugcagca uugcuggaug gaucuuagga 240

aauccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacccugaaa auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgaaaga uuugaaauau uccccaagga aagcucaugg 420

cccaaccaca ccguaaccaa aggagugacg gcaucaugcu cccauaaugg aaaaagcagc 480

uuuuacaaaa auuugcuaug gcugacggag aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaacaagaa aaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagggg accaaagggc cauuuaucau acagaaaaug cuuaugucuc uguagugucu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagaaaucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguac gcuuucgcau ugaguagagg cuuugaguca 840

ggaaucauca ccucaaacgc aucaaugggu gaaugugacg cuaaguguca aacaccucaa 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggggagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggagg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaccaaaaaa gcacacaaaa ugccauuaau gggauuacaa acaaggugaa uucuauaauc 1200

gagaaaauga acacucaauu cacagcugua ggcaaagaau ucaacaaauu agaaagaaga 1260

auggagaacu uaaauaagaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuccugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaccuguaug agaaaguaaa aaaccaauug aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc caaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa uggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 41655
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO65016

<400> 41655
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauuaggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuucuaaa gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucggca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag aauggcuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgucuaac 600

auaggggacc aaaggaccau cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gcaaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccaa ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

auagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaacuuaga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41656
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO65027

<400> 41656
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaaccugggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uuugcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41657
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO65038

<400> 41657

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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaucuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaugucc 540

uauguaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccaccuaac 600

auagggaacc aaagggcccu cuaccauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag uuacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggaguaaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41658
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66136

<400> 41658
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uguauagggu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc acgguaugcu uucgcacuga guagaggauu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugccgcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacgaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuauaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41659
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66147

<400> 41659
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uguauaggcu accaugcgaa caacucaacu gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugccga 180

cuaaaaggaa cagccccacu acaauugggu aauugcagca uugccggaug gaucuuagga 240

aauccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacccuaaaa auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uuugaaauau uccccaagga uagcucaugg 420

cccaaccaca cuguaaccaa aggagugacg gcaucaugcu cccauaaugg gaaaagcagc 480

uuuuacaaaa auuugcuaug gcugacgggg aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaaaaaggg aaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacaugggg accaacgggc caucuaucau aaagaaaaug cuuauguuuc uguguugucu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagagaucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaaccug gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccgugguac gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ucucaaacgc aucaaugggu gaaugugacg cuaaguguca aacaccccaa 900

ggagcuauaa acaguagucu ccccuuccag aauguacacc cagucacaau aggagagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gucuaaggaa cgucccaucc 1020

auucaaucca gaggguuguu uggagccauu gccgguuuca uugaaggagg guggacugga 1080

augauagaug gaugguaugg uuaucaucau caaaaugaac aaggaucugg cuaugcugcg 1140

gaccaaaaaa gcacacaaaa ugccauuaau gggauuacaa acaaggugaa uucuauaauc 1200

gagaaaauga acacucaauu cacagcugua ggcaaagaau ucaacaaauu agaaagaagg 1260

auggaaaacu uaaauaagaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuag uucuccugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaccuguaug agaaaguaaa aaaccaauug aagaauaaug ccaaagaaau agggaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc caaagaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguucg 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 41660
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66158

<400> 41660
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uguauaggcu accaugccaa caacucaacc gauacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag ggaucauggu ccuacauugu agaaacacca 300

aaucccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccgugaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaugucc 540

uauguaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccaccuaac 600

auagggaacc aaagggcccu cuaccauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcacc augguaugcu uuugcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuucagaau guacacccag uuacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauuuac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaagaacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauucuga agaaucaaag uuaaacaggg agaaaauuga uggaguaaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguuccuug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41661
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66169

<400> 41661
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaguuacu gauuuccaag gaaucauggu ccuacauugu agaaacauca 300

aauccugaga auggaacaug uuacccaggg uauuucaccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaugga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg ugagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aguauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41662
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66180

<400> 41662
augaaagcaa aacuacuggu ccuguuaugu acauuuacag cuacauacgc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aaucccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccgugaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaugucc 540

uauguaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccaccuaac 600

auaggggacc aaagggcccu cuaccauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag aaaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag uuacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga ugggguaaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41663
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66191

<400> 41663
augaaagcaa aacuacuggu ccuguuaugu acauuuacag cuacauacgc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aaucccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaugucc 540

uauguaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccaccuaac 600

auagggaacc aaagggcccu cuaccauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg acacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag uuacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauuaga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaaa gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggaguaaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41664
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66202

<400> 41664
augaaaguaa aacuacugau ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccccu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu auacuauggg guguucauca cccgccuaac 600

auaggggacc aaaggacccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaacgc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugaugga uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc acgacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41665
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66213

<400> 41665
augaaaguaa aacuacuggu ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaaaaau 120

gugacaguga cacacucugu caacuuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaaaagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ccaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaua uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccga aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 41666
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66224

<400> 41666
augaaaguaa aacuacuggu ucuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug agggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41667
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFO66235

<400> 41667
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugucc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41668
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFO66246

<400> 41668

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggaugaa ugugaugcgg agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41669
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFP33324

<400> 41669
augaaagcaa aacuacuagu ucuguugugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacu gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugccga 180

cuaaaaggaa cagccccacu acaauugggu aauugcagca uugccggaug gaucuuagga 240

aauccagaau gcgaaucacu guuuucuaag gaaucauggu cuuacauugc agaaacacca 300

aacccuaaaa auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uuugaaauau uccccaagga uagcucaugg 420

cccaaccaca cuguaaccaa aggagugacg gcaucaugcu cccauaaugg gaaaagcagc 480

uuuuacaaaa auuugcuaug gcugacgggg aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaaaaaggg aaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacaugggg accaacgggc caucuaucau aaagaaaaug cuuauguuuc uguguugucu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gaccaaaagu aagagaucaa 720

gaagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccgugguac gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ucucaaaugc aucaaugggu gaaugugacg cuaaguguca aacaccccaa 900

ggagcuauaa acaguagucu ccccuuccag aauguacacc cagucacaau aggagagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gacuaaggaa cgucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggagg guggacugga 1080

augauagaug gaugguaugg uuaucaucau caaaaugaac aaggaucugg cuaugcugcg 1140

gaccaaaaaa gcacacaaaa ugccauuaau gggauuacaa acaaggugaa uucuauaauc 1200

gagaaaauga acacucaauu cacagcugua ggcaaagaau ucaacaaauu agaaagaagg 1260

auggaaaacu uaaauaagaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuag uucuccugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaccuguaug agaaagugaa aacccaauug aagaauaaug ccaaagaaau agggaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc caaagaauca aagcuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguucg 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucucug 1680

caguguagaa uaugcaucug a 1701

<210> 41670
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFP33325

<400> 41670
augaaaguaa aacuacuggu ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauucccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccagccaca ccguaaccgg aguaucagca ucaugcucuc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uauucaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag aggucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cccaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 41671
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFQ32573

<400> 41671
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ggaaaugaca acagcacggc gacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguuggg gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFQ37281

<400> 41672
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucuuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcga uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgaugac aagugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41673
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFQ55689

<400> 41673
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auaugucuug ggcaccaugc uguggcaaau ggaacaaaag ugaacacauu aacagagaga 120

ggaaucgaag uaguaaaugc cacagaaacg guggagacug caaauacuaa gaaaauaugc 180

acucagggga aaagaccaac agaucuggga caaugcggac uucuaggaac ccuaauagga 240

ccucccccaau gcgaucaauu ucuggaauuu gacgcugauu uaauaauuga acgaagagaa 300

ggaaccgaug uguguuaucc cgggaaguuc acaaaugaag aaucacugag gcaaauccuu 360

cgagggucag gaggaauuga uaaagaguca auggguuuca ccuauagugg aauaagaacc 420

aauggggcga caagugcuug cagaagauca gguucuuccu ucuaugcgga gaugaagugg 480

uuacugucga auucagacaa ugcggcuuuu ccccaaauga cuaagucgua cagaaauccc 540

aggaacaaac cagcucugau aauuugggga gugcaucauu cuggaucggc uacugagcag 600

accaaacucu augggagugg aaacaaguug auaacaguag gaagcucgaa auaccagcag 660

ucauucaccc caagcccggg ggcacgacca caggugaaug ggcaaucagg aaggauugac 720

uuucacuggc uacuccuuga ucccaaugac acagugaccu ucacauucaa uggggcauuc 780

auagcuccug acagagcaag uuucuuuaga ggagagucaa uaggaguuca gagugauguu 840

ccuuuggauu cugguuguga gggggauugc uuccacaaug gggguacgau agugaguucc 900

cugccauucc agaacaucaa cccuagaaca gugggaaaau gcccucgaua ugucaaacag 960

acaagccucc uuuuggcuac agggaugaga aacgucccag agaaccccaa ggauaggaag 1020

agccgacauc gaaggaccag aggccuuuuu ggagcgauug cuggauucau agagaaugga 1080

ugggaagguc ucauugaugg augguauggu uucagacauc aaaaugcaca aggagaagga 1140

acugcagcug auuacaaaag cacucaaucu gcgauagauc agaucacagg caaauugaau 1200

cgucuaauug acaaaacaaa ucagcaguuu gaacugauag acaacgaauu cagugaaaua 1260

gaacaacaaa uugggaaugu cauuaacugg acacgagauu caaugacuga gguauggucg 1320

uacaaugcug aauugcuggu agcuauggaa aaucagcaca caauagaucu ugcagacuca 1380

gaaaugaaca aacuuuauga gcguguaagg aaacaacuga gggagaaugc ugaagaggau 1440

gggacuggau gcuuugaaau auuucauaag ugugaugauc agugcaugga gagcaucagg 1500

aacaacacuu augaccauac ucaauacaga gcggagucau ugcagaauag aauacagaua 1560

gacccaguga aauugaguag uggauacaaa gacauaaucu uaugguuuag cuucggggca 1620

ucauguuuuc uucuucuagc cauugcaaug ggauugguuu ucauuugcau aaagaaugga 1680

aacaugcggu gcacuauuug uauauag 1707

<210> 41674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR68153

<400> 41674
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41675
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR68163

<400> 41675

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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugc caaucuucua gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41676
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR68173

<400> 41676
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41677
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84675

<400> 41677
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41678
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84685

<400> 41678
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauaa uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41679
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84694

<400> 41679
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41680
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84704

<400> 41680
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41681
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84714

<400> 41681
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucgugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84724

<400> 41682
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41683
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84734

<400> 41683
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41684
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84754

<400> 41684
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41685
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84764

<400> 41685
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41686
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFR84774

<400> 41686

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41687
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84784

<400> 41687
augaaggcaa uacuaguagg ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgauau auucaacugu cgccaguuca 1620

uuggcacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41688
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84794

<400> 41688
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41689
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84804

<400> 41689
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41690
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84814

<400> 41690
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41691
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84824

<400> 41691
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41692
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84834

<400> 41692
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41693
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84844

<400> 41693

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc uucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41694
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84854

<400> 41694
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41695
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84864

<400> 41695
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41696
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84874

<400> 41696
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagagau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41697
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84893

<400> 41697
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41698
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84903

<400> 41698
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41699
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84913

<400> 41699
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41700
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFR84923

<400> 41700
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41701
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFV53205

<400> 41701
auggccauca uuuaucucau acuccuguuc gcaacaguga ggggggacca gauaugcauu 60

ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccacaacg gaaaacuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaaccca 300

agauacaguu uguguuaccc aggcagcuua aaugacuaug aagaauugaa acaucuccuc 360

agcagcguaa gacauuucga gaaaguaagg auucugccca aagauagaug gacacagcau 420

acaacaacug gagauucaaa ggccugcgca gugucaggua aaccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaccagau uauccgguug ccaaaggauc guauaacaau 540

acgagcggag agcaaaugcu aauaauuugg ggagugcacc auccuauuga ugaagcagaa 600

caaagagaau uguaccagaa agugggaacc uauguuuccg caagcacauc aacauugaac 660

aaaaggucaa ucccugaaau agcagcaagg ccugaaguga auggacuuag aaguagaaug 720

gaauucucuu ggacccucuu ggauguaugg gacaccauaa auuuugagag cacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucaaaaagag guaguucagg aaucaugaag 840

acagaaggaa cacuuggaaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaug uuccccaaau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugauga aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aauaauuuag agaaaagacu ggagaacuug 1260

aacaaaaaga uggaagaugg guuccuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuc caugauucua auguaaaaaa ccuguaugaa 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugacgauga augcauaaau agugugaaaa acggaacgua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaagaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu accaaauucu ugccauuuau gcuacaguug cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 41702
<211> 1689
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AFV53216

<400> 41702
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aacgauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacagagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagacau agcaacaagg ccuaaaguga auggacaagg agguagaaug 720

gaauucucuu ggacccuauu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugggaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguuga gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggauuu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 41703
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFV53227

<400> 41703
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ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccauaacg gaaagcuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggauugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agauacaguu uguguuaucc aggcagcuuc aaugacuaug aagaauugaa acaucuccua 360

aguagcguaa aacacuucga gaaaguaaag auucugccaa aagauggaug gacacagcau 420

aagacagaug gagguucaaa ggccugcgca gugucaggua aagcaucauu cuucaggaac 480

auggucuggc ugacaaagga aggaccaaau uaucagguug ccaaaagauc guacaacaau 540

acgagcggag agcaaaugcu aauaauuugg ggagugcacc auccuaagga ugaggcggaa 600

caaauagcau uguaccagaa agugggaacc uauguuuccg caagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcagcaagg ccugaaguga auggacuagg gaguagaaug 720

gaauucucuu ggacccucuu ggaugugugg gacaccauaa auuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucgaaaagag guagcucagg gaucaugaag 840

acagaaggaa cacuugggaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugacag aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

auccaauuug aagcuguugg gaaagaauuc aguaacuuag agaaaagacu ggaaaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ccuguaugau 1380

aaagucagaa ugcagcugag agacaauguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucauaaau gugacgauga augcaugaau agugugaaaa augggacaua ugauuauccc 1500

aaguaugaag aagaaucuaa gcuaaagaga aaugaaauca aagggguaaa auugagcagc 1560

augggguuu accaaauucu ugccauuuau gcuacaguug cagguucucu gucauuggca 1620

aucaugauag cugggaucuc uuucuggaug uguuccaacg ggucucugca gugcagaguc 1680

ugcauauga 1689

<210> 41704
<211> 1689
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFV53238

<400> 41704

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gugacucaug ccaaggacau ccuugagaag acccauaacg gaaagcuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agauacaguu uguguuaccc aggcagcuuc aaugacuaug aagaauugaa acaucuccuc 360

agcagcguaa aacauuucga gaaaguaaag auuuugccca aagauagaug gacacagcau 420

acaacaacug gagguucaau ggccugcgcg gugucaggua aaccaucauu cuucaggaac 480

auggucuggc ugacaacgaa aggaccaaau uauccgguug cccaaggauc guacaacaau 540

acgagcggag aacaaaugcu aauaauuugg ggagugcacc auccuaauga ugaggcagaa 600

caaagagcau uguaccagaa agugggaacc uauguuuccg caagcacauc aacauuguac 660

aaaaggucaa ucccagaaau agcagcaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag cacugguaau 780

cuaguugcac cagaguaugg guuuaaaaua ucgaaaagag guaguucagg gaucaugaag 840

acagaaggaa cacuugagaa cugugaaacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agaaaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcaga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugacaauga augcauggau agugugaaaa acgggacaua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 41705
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFV53249

<400> 41705
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ggauaccaug ccaauaauuc cacagaaacg gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccacaacg gaaagcuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugcag gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaaucca 300

agauacaguu uguguuaccc aggcagcuua aaugacuaug aagaauugaa acaucuccuc 360

agcagcguaa aacauuucga gaaaguaagg auucugccca aagauagaug gacaaaucau 420

acaacaacug gagguucaaa ggccugcgca gugucaggug aaccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaccaaau uauccgguug ccaaaggauc uuauaacaau 540

acgagcggag agcaaaugcu aauaauuugg ggagugcacc auccuaauga ugaggcagaa 600

caaagagcau uguaccagaa agugggaacc uauguuuccg caagcacauc aacauuguac 660

aaaagaucaa ucccugaaau agcagcaagg ccuaaaguga auggacuugg aaguagaaug 720

gaauucucuu ggacccucuu gaauguaugg gacaccauaa auuuugagag cacugguaau 780

uuaguugcac cagaguaugg auucaaaaua ucaaaaagag guagaucagg gaucaugaaa 840

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acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauugguccu agcaacagga cuaaggaaug uuccccaaau ugaaucaaga 1020

ggauuguuug gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aaggugaauu cugugauuga aaaaaugaac 1200

acccaauuug aagccguugg gaaagaauuc aauaauuuag agaaaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuccuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuc caugauucua auguaaaaaa ccuguaugaa 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugacgauga augcaugaau agugugaaaa acggaacgua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaagaga aaugaaauca aagggguaaa auugagcagc 1560

augggguuu accaaauucu ugccauuuau gcuacaguug cagguucucu gucacuggca 1620

aucauggugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 41706
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFV53260

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaaugggaa auuaugcaga 180

uuaaaaggaa aagccccacu acaauuggggg aacuguaaca uugccggaug ggucuuagga 240

aacccagaau gcgaaucauu gcucuccaau agaucauggu ccuacauugc agaaacacca 300

aacucugaga augggacaug cuacccaggg gauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaccaca caaccagagg agugacggca gcaugccccc augcgaugaa aagcaguuuu 480

uacaaaaauu uggucuggcu gacggaggca aauggcucau acccaaaucu gagcaggucc 540

uaugugaaca aucaagagaa agaaguccuu gugcuauggg gaguucauca cccgucuaac 600

auagaggauc aaaggacccu cuaucggaaa gauaaugcuu augucucugu agugucuuca 660

aauuauaaca ggagauucac cccagaaaua gcaaaaaggc ccaaaguaag aggucaauca 720

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acugggaauc uaauagcacc augguaugcu uucgcacuga guagaggccc uggaucaggg 840

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gcuauaaaca guagucuccc uuuucagaau auacacccug ucacaauagg agagugccca 960

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caauccaggg gucuguuugg agccauugcc gguuucauug aagggggaug gacugggaug 1080

auggauggau gguaugguua ccaucaucag aacgaacagg gaucuggcua ugcugcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaua aggugaacuc uguuaucgag 1200

aaaaugaaca cucaauucac agcugugggu aaagaauuca acaaauuaga aaaaagaaug 1260

gaaaacuuaa auaaaaaggu ugaugaugga uuucuggaua uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuuuc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaauuaagg aauaaugcaa aggaacuagg aaaugggugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaaaaaa uggaacuuau 1500

gacuacccaa aauauucaga ggaaucaaaa uuaaacaggg aaaagauuga uggagugaaa 1560

uuggaaucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucacua 1620

gugcuucugg ucucccuggg ggcaaucagc uucuggaugu guucuaaugg gucuuuacag 1680

ugcagaauau gcaucuga 1698

<210> 41707
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFV53271

<400> 41707
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ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

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gaaugugaua gguuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agauacaguu uguguuaccc aggcagcuuc aaugacuaug aagaauugaa acaucuccuc 360

agcagcguaa aacauuucga gaaaguaaag auucugccca aagauggaug gacacagcau 420

acaacaacug gagguucaau ggccugcgcg gugucaggua aaccaucauu cuucaggaac 480

auggucuggc ugacagagaa aggacaaaau uauccaguug ccaaaggauc guacaacaau 540

acgagcggag aacaaaugcu aauaauuugg ggagugcacc auccuaauga ugaggcagaa 600

caaagagcau uguaccagaa agugggaacc uauguuuccg caagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcagcaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaag 840

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acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaua uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acucaauuug aagcuguugg gaaagaauuc aguaacuuag agaaaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

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uaucacaaau gugacaauga augcauggau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaauaga aaugaaauca aagggguaaa guugagcagc 1560

augggggguu aucagauccu ugccauuuau gcuacagugg cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 41708
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFV53282

<400> 41708
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaacaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcaacaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuagg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaauuggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugu aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

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aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguuu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

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hemagglutinin__InfluenzaA__AFV53293

<400> 41709
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gugacucaug ccaagaacau ccuugagaag acccauaacg gaaagcuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaacccg 300

aaauacaguu uguguuaccc aggcagcuuc aaugacuaug aagaauugaa acaucuccuc 360

agcagcguaa aacauuucga gaaaguaaag auucugccca aagauggaug gacacagcau 420

acaacaaaug gagguucaag ggccugcgcg gugucaggua acccaucauu cuucaggaac 480

augucuggc ugacaaagaa aggaccaaau uauccgguug ccaaaggauc guacaacaau 540

acgagcggag aacaaaugcu aauaauuugg ggagugcacc auccuaauga ugaggcagaa 600

caaagagcau uguaccagga agugggaacc uauguuucug caagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcagcaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg ggucaugaag 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucagaga aauuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc agcaacuuag agaaaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugacgauga augcauggau agugugaaaa acgggacaua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 41710
<211> 1689
<212> RNA
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<220>
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<400> 41710
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagca gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

augucuggc ugacaaagaa agaaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccaaacau agcaacaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccuauu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 41711
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFV53314

<400> 41711

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ggauaccaug ccaauaauuc cacagagacg gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agaaacgguu uguguuaucc aggcaacuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucaca ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacagagaa agaaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccauuga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcaaaaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa cuuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucugg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaaug cugugauuga aaagauaaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 41712
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFV53325

<400> 41712
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaucaaau uauacgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcaacaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcuc cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga gugcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 41713
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFV53336

<400> 41713
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ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccauaacg gaaagcuaug caaacuaaac 180

ggaauuccuc cacuugaacu aggggauugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agauacaguu uguguuaucc aggcagcuuc aaugacuaug aagaauugaa acaucuccuc 360

aguagcguaa aacaccucga gaaaguaaag auucugccaa aagauggaug gacacagcau 420

gagacagaug gagguucaaa ggccugcgca gugucaggua aaccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaccuaau uauccgguug ccaaaagauc guacaacaau 540

acgagcggag agcaaaugcu aauaauuugg ggagugcacc auccuaauga ugaggcagaa 600

caaagagcau uguaccagaa agugggaacc uauguuuccg caagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcagcaagg ccugaaguga guggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggaugugugg gacaccauaa guuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaag 840

acagaaggaa cacuugggaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugacag aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agaaaagacu ggaaaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggau acuugacuuu caugauucua augucaagaa ccuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucauaaau gugacgauga augcaugaau agugugaaaa augggacgua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaagaga aaugaaauca aaggggugaa auugagcagc 1560

augggggguu accaaauucu ugccauuuau gcuacaguug cagguucucu gucacuggca 1620

aucaugauag cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 41714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AFV68720

<400> 41714
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguucuucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gaaaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41715
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96347

<400> 41715
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96359

<400> 41716
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96366

<400> 41717
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauagagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaacu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41718
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96383

<400> 41718
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau cuacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41719
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96398

<400> 41719
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41720
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96408

<400> 41720
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41721
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96418

<400> 41721
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFX96428

<400> 41722

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41723
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96438

<400> 41723
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96448

<400> 41724
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41725
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96458

<400> 41725
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96468

<400> 41726
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41727
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96478

<400> 41727
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96488

<400> 41728
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41729
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96498

<400> 41729

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96508

<400> 41730
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug cuaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41731
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96518

<400> 41731
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41732
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96528

<400> 41732
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41733
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96538

<400> 41733
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96548

<400> 41734
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41735
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96558

<400> 41735
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41736
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96568

<400> 41736
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41737
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96578

<400> 41737
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96588

<400> 41738
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41739
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96598

<400> 41739
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFX96608

<400> 41740

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacucu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41741
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96618

<400> 41741
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96628

<400> 41742
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ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaacu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41743
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96638

<400> 41743
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaguaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaccag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaauggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

uguuuugaau ucuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96648

<400> 41744
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguu cucguucuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaccag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41745
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96658

<400> 41745
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96668

<400> 41746
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ucaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaguuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41747
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96678

<400> 41747

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96688

<400> 41748
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagauu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcuacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugauggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41749
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96698

<400> 41749
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu cauacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41750
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96718

<400> 41750
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa agccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41751
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96728

<400> 41751
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa agccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96738

<400> 41752
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauca cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96748

<400> 41753
augaaggcaa uacuaguagu ucugcuauau acaauugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguaau agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96758

<400> 41754
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41755
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96768

<400> 41755
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaacg gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aucucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacguguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96778

<400> 41756
augaaggcaa uacuaguaau ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccaaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41757
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96788

<400> 41757
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucugucauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaauua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AFX96798

<400> 41758

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccggagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagu 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaauua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96808

<400> 41759
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu ucccaaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96818

<400> 41760
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96828

<400> 41761
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cgcacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcggg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaauua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96838

<400> 41762
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccaaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacucuugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguauugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96856

<400> 41763
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugua cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaccag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgag 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96904

<400> 41764
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ucaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41765
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96914

<400> 41765

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96924

<400> 41766
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagagguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFX96934

<400> 41767
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFY24097

<400> 41768
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgga caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caaccaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41769
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFY24162

<400> 41769
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccguuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFY24195

<400> 41770
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41771
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFY24217

<400> 41771
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuuugcuca aaagcuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gaugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauccg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaacagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagagucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB08294

<400> 41772
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaucaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accaagauau gcauucguaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caagauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41773
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB08295

<400> 41773
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguaau agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuauccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaaag gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaac ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB08296

<400> 41774
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaggu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaac ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41775
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB08297

<400> 41775
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcgaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaac ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41776
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGB08298

<400> 41776

augaaggcaa uacuaguagu ucuucuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucguggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaag gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggagagaac ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaacu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41777
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB08301

<400> 41777
augaagacca ucauugcuuu gagcuacauu cuaugucuag uuuucgcuca agaacuuccu 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaguaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaauggg 1500

acuuaugauc acaaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41778
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB08343

<400> 41778
augaagacua ucauugcuuu gagcuacauu uucugucugg uucucgccca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauug augcucuauu gggggacccu cauugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cuggggucac ucagaauggg ggaagcuaug cuugcaaaag gggaccugau 480

aacgguuuuu ucaguagacu gaacugguug uacaaaucag aaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggguga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg caaugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuaggggcau auucggugca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagagua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcagagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41779
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB08362

<400> 41779
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaga ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggaaaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugauaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB12986

<400> 41780
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uuuuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacaaua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41781
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13006

<400> 41781
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguagca uugccggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguacac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13016

<400> 41782
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaauuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aauuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau cagcaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41783
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13026

<400> 41783

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41784
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13036

<400> 41784
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13048

<400> 41785
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcauag aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13066

<400> 41786
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaggcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41787
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13082

<400> 41787
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13105

<400> 41788
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41789
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13125

<400> 41789
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaagaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13130

<400> 41790
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41791
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13140

<400> 41791
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcuuauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41792
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13159

<400> 41792
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccucauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41793
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13170

<400> 41793
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccgucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag gaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGB13180

<400> 41794

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13190

<400> 41795
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41796
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13200

<400> 41796
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aguaaaaagc 480

uucuacaaaa acuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13210

<400> 41797
augaaggcaa cacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13220

<400> 41798
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccauaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13230

<400> 41799
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaauc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccgccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41800
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13240

<400> 41800
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41801
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13250

<400> 41801

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13260

<400> 41802
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg aucaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucugguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu uccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaaguaucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41803
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13270

<400> 41803
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cagugcagaa uauguauuua a 1701

<210> 41804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13280

<400> 41804
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaaugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugggc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41805
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13290

<400> 41805
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagucaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gagaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13300

<400> 41806
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41807
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13310

<400> 41807
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaguuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagca ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41808
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13320

<400> 41808
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau cagcaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41809
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13330

<400> 41809
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacagua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13340

<400> 41810
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuguu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41811
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13350

<400> 41811
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uguauagguu aucaugcgaa caauucaaca gaaacuguag acacaguacu agaaaagaau 120

guaacaguga cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41812
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGB13360

<400> 41812

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaaauguugg uucuauugga aaaugaaaaa acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41813
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13380

<400> 41813
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa uccuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41814
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13390

<400> 41814
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41815
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13400

<400> 41815
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41816
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13410

<400> 41816
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41817
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13420

<400> 41817
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41818
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13430

<400> 41818
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 41819
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13440

<400> 41819

augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguucg 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41820
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13450

<400> 41820
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41821
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13460

<400> 41821
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41822
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13470

<400> 41822
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41823
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13480

<400> 41823
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41824
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13490

<400> 41824
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagu 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41825
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13500

<400> 41825
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41826
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13520

<400> 41826
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41827
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13530

<400> 41827
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccug gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau aaaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41828
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13540

<400> 41828
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguagca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaag aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41829
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13550

<400> 41829
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGB13560

<400> 41830

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41831
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13570

<400> 41831
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

ugcauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuacugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13580

<400> 41832
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau ugggaacggc 1440

ugcuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41833
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13590

<400> 41833
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41834
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13600

<400> 41834
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41835
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13610

<400> 41835
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13620

<400> 41836
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguagca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41837
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13630

<400> 41837

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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13640

<400> 41838
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41839
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13650

<400> 41839
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuga uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13660

<400> 41840
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41841
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13721

<400> 41841
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB13731

<400> 41842
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41843
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB51356

<400> 41843
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uguauagguu aucaugcaaa uaauucaacu gacacuguug auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucuu gaagacagac auaacgggaa acuauguaaa 180

cugggggga uagccccauu gcacuugggu aaauguaaca uugccggaug gcuuuuggga 240

aacccagaau gugaauuacu acucacagua agcucauggu cuuacauugu ggaaacaucg 300

aacucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcugagagag 360

caguugagcu cagugucauc auuugaaaga uucgagauau uccccaagac aaguucgugg 420

cccaaucaug aaacaaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcugguggaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauguua acaauaaagg gaaggaaguc cuugugcuau ggggcauuca ucauccaccu 600

accaguacug aucaacaaag ucucuaccaa aaugcagaug ccuauguuuu uguaggguca 660

ucaaaauaua acagaaaguu caagccagaa auagcagcaa gacccaaggu gagaggucaa 720

gcagggagga ugaacuauua cuggacacua auagaaccug gagacacaau aacauuugaa 780

gcaacuggaa aucuaguggu accaagauau gcuuucgcaa ugaauagagg uucuggaucu 840

gguauuauaa uuucggaugc accaguucau gauuguaaca cgaaguguca aacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcugguuuua uugagggggg auggacagga 1080

augauagaug gaugguaugg uuaucaccau cagaaugaac agggaucagg auaugcagcg 1140

gaccaaagga gcacacaaaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacgcaauu cacggcagug gguaaagaau ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auauuuggac auacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acucuggauu uccacgacuc gaauguaaag 1380

aaccuguaug agaaaguaag aagccagcua aggaacaaug ccaaagaaau ugggaauggc 1440

ugcuuugaau ucuaucacaa augugaugau acaugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaguacuc agaagaauca aagcuaaaca gagaggagau agauggagua 1560

aaguuggagu caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uggucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 41844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB97269

<400> 41844
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uguauagguu accaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

auaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggagcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41845
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB97273

<400> 41845
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uguauagguu accaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccaag 900

ggagcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau ggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB97288

<400> 41846
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ggaaaugaca auagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcuaaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41847
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGB97292

<400> 41847
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGB97300

<400> 41848

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89267

<400> 41849
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89277

<400> 41850
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaacu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89287

<400> 41851
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguacuu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuucug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89298

<400> 41852
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugauacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89308

<400> 41853
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89318

<400> 41854
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41855
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89329

<400> 41855

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugagagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcuuug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89340

<400> 41856
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89350

<400> 41857
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89361

<400> 41858
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41859
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89371

<400> 41859
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaua acagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugaaaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89382

<400> 41860
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga gaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89392

<400> 41861
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca agaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89422

<400> 41862
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaacaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu uaagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaagugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89719

<400> 41863
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acucacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89730

<400> 41864
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugggc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaggagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89740

<400> 41865
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGE89751

<400> 41866

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccau ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaagca accguuucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGE89762

<400> 41867
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucag caggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44891

<400> 41868
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccguugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41869
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44892

<400> 41869
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccguugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44895

<400> 41870
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41871
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44896

<400> 41871
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuuacuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44897

<400> 41872
augaagacca ucauugcuuu gagcuacauu cuaugucuag uuuucgcuca agaacuuccu 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41873
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44900

<400> 41873

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagguu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41874
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44901

<400> 41874
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41875
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44902

<400> 41875
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44903

<400> 41876
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41877
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44904

<400> 41877
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41878
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44905

<400> 41878
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaacac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccuu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41879
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44906

<400> 41879
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41880
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44908

<400> 41880
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41881
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44909

<400> 41881
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41882
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44910

<400> 41882
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41883
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44911

<400> 41883
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41884
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGF44912

<400> 41884

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41885
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44913

<400> 41885
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44914

<400> 41886
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauauug gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaagaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44916

<400> 41887
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaac 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44917

<400> 41888
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caauuacgaa ugaacaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggcgaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau acguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcuauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucggggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41889
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44919

<400> 41890
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44920

<400> 41891

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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41892
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGF44921

<400> 41892
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41893
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13411

<400> 41893
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaaaccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13447

<400> 41894
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac acagaagcaa cuuagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41895
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13459

<400> 41895
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuacgacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13495

<400> 41896
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 41897
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaucuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 41898
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggaugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaguucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41899
<211> 1701
<212> RNA
<213> Artificial Sequence

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<400> 41899
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41900
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 41900
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgucacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg acauugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13555

<400> 41901
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41902
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGG13567

<400> 41902

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41903
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13591

<400> 41903
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacag acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga cagaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41904
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGG13615

<400> 41904
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaguga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 41905
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga cagaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13639

<400> 41906
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacga acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acgauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41907
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13651

<400> 41907
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41908
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGG13663

<400> 41908
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41909
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13675

<400> 41909

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13687

<400> 41910
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ggaaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41911
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13711

<400> 41911
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41912
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 41912
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagauccaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41913
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13735

<400> 41913
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13747

<400> 41914
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41915
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13759

<400> 41915
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41916
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13771

<400> 41916
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gauaauaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41917
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13783

<400> 41917
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa ugggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauguccccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagguua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41918
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13795

<400> 41918
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcccuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41919
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13807

<400> 41919
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagguu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41920
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGG13819

<400> 41920

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41921
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13831

<400> 41921
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13855

<400> 41922
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13867

<400> 41923
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaaugg augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagauccaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41924
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13879

<400> 41924
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41925
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13891

<400> 41925
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13903

<400> 41926
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugcuc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41927
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13927

<400> 41927

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGG13939

<400> 41928
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga cagaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc auuaguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41929
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13962

<400> 41929
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaggg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcugaaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGG13973

<400> 41930
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuaggcc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41931
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13985

<400> 41931
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG13997

<400> 41932
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41933
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG14009

<400> 41933
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG14021

<400> 41934
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41935
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGG14033

<400> 41935
augaagacua ucauugcuuu gagcuacauu cuaugucuag uuuucgccca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41937
<211> 1701
<212> RNA
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<220>
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<400> 41937
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa uaagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41938
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGG84179

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caagugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagguu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41939
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGI02564

<400> 41939
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auugguuacc augcaaacaa cucgacagag cagguugaca cgauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccaaccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaagaguuc uugguccggc 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuua uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguua ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuaggaaua augcaaagga gcuggguaau 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccacagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau cuag 1704

<210> 41940
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGI02565

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acggaaagcu cugcgaccuc 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauucau caauguaccg gaauggucuu acauagugga gaaggccauu 300

ccagccaaug accucuguua cccaggggau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccaau 420

caugaagccu cauuaggggu gagcucagca uguccauacc ugggaaagcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuugaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aauuggaaua ugguaauugc aacaccaagu gccaaacucc aaugggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggauac caccauagca augagcaggg gaguggauac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugauucaaau 1380

gucaagaacc uuuaugacaa gguccgacua cagcuuaggg auaaugcaaa agagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

aguucccuag cacuggcaau caugguagcu ggucuaucuu uauggaugug cuccaauggu 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 41941
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGI02566

<400> 41941
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aucgguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggag aagacacaua acgggaaacu cugcgaucua 180

gauggaguga agccucugau ucuacgagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguсuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggа uucaucauuc caaugaugca 600

gcagagcaga uaaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcu acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugauaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuggaaagg 1260

agaauagaga acuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 41942
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGI02567

<400> 41942
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaaugguсuu acauagugga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu caaaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaagguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaaguggg 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu ugagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaaggaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggagucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuaucuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug caucuag 1707

<210> 41943
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGI02568

<400> 41943
auggagaaaa uagugcuucu ucuugcaaua gucagccuug uuaaaaguga ucagauuugc 60

aucgguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggag aagacacaua acgggaaacu cugcgaucua 180

gauggaguga agccucugau ucuacgagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaaa ucuuuugaua cugugggggа uucaucauuc uaaugaugca 600

acagagcaga uaaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauaggc acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca aggaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcu acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga acuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaggaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauggg aauuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 41944
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGI60301

<400> 41944
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug guauaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugaucgacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 41945
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ72861

<400> 41945

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacuuu aacugaaaga 120

ggaggggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaagggga aaaagacagu ugaccucggu caagggggac cccgggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuaugga gaggcgagaa 300

ggaagugaug ucuguuaucc ggggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucaaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 41946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73327

<400> 41946
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagu 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaccaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuccagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa acuugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggaaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73329

<400> 41947
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagaugc accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73331

<400> 41948
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa cucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaacaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaggugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41949
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73333

<400> 41949
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73335

<400> 41950
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccga gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucc 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41951
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73337

<400> 41951
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu caguaucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ccucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaggugag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc ugaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41952
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73339

<400> 41952
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41953
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73341

<400> 41953
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41954
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73343

<400> 41954
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc aaaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41955
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73345

<400> 41955
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugaagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gaaacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGJ73347

<400> 41956

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gaccaaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caaccuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41957
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73349

<400> 41957
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73351

<400> 41958
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaaau gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41959
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73353

<400> 41959
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu gccgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aguauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73355

<400> 41960
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaacc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73357

<400> 41961
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41962
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73361

<400> 41962
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacauca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuuuca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41963
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73363

<400> 41963

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41964
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73365

<400> 41964
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41965
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73367

<400> 41965
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggc ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguagcg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccag gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41966
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73369

<400> 41966
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucuuuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agcggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41967
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73371

<400> 41967
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41968
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73373

<400> 41968
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagcca cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41969
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73375

<400> 41969
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccgagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41970
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73377

<400> 41970
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcaucauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggacg 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg auggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuaaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca aagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41971
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGJ73380

<400> 41971
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaauu caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauauggac uuacaaugcc 1320

gaacuguuug uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

gacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 41972
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK62991

<400> 41972
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucg uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41973
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK62993

<400> 41973
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu agcaaaugca auucugcaug caucacuaca 900

aauggaagca uuccuaauga caaaccauuc caaaauguua acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggu ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41974
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGK62995

<400> 41974

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaggacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41975
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK62997

<400> 41975
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac augcggggcc 960

ugugccagau auguuaagca aaacacucug aaauuggcga caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcgguuu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag agaacaagca 1140

gcagcuuuuc aaagcacuca agcagcaauc gaccaaauca uugggaagcu gaauagauug 1200

aucggggaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaagg 1260

agaauucagg cccuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggu ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41976
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK62999

<400> 41976
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41977
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63001

<400> 41977
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ggaaaugaca acagcacggc aacgcugugc cuugugcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauggguug acccacuuaa auuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag ggagcaagca 1140

gcagauuuuc aaagcacuca agcagcaauc gaucaaauca uugggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaagg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggu ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGK63003

<400> 41978
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaggacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41979
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63005

<400> 41979
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ggaaaugaca acagcacggc aacgcugugc cuugugcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauuag gagaucuaau 480

aguaguuucu uuaguagauu gaauggguug acccacuuaa acuucaaaua cccagcauug 540

gacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcgguuu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag agagcaagca 1140

gcggauuuuc aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41980
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63007

<400> 41980
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguua acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41981
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63009

<400> 41981

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gccuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41982
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63011

<400> 41982
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuucug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41983
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63013

<400> 41983
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauuag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

gacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugugccagau auguuaagca aaacacucug aaauuggcga caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcgguuu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag ggggcaagca 1140

gcggcucucc aaagcacuca agcagcaauc gaucaaauca cugggaagcu gaauagauug 1200

aucggggaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg cccuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggu ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41984
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63015

<400> 41984
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41985
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63017

<400> 41985
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugacg gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucccu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41986
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63019

<400> 41986
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41987
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63021

<400> 41987
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca agaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugacg gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucccu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcugu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41988
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63025

<400> 41988
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccucuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41989
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63027

<400> 41989
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41990
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63029

<400> 41990
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugacg gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucccu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacuaca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41991
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63031

<400> 41991
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa aaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugauua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa acuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucugg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41992
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGK63033

<400> 41992

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuauug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41993
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63035

<400> 41993
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaacu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41994
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63037

<400> 41994
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacugua acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagauccaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacca ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcgcagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41995
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63039

<400> 41995
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa aaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauuag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacuu ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu agcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggu ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41996
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63041

<400> 41996
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gccuccaaaa caagaaaugg 300

gaccuuauug uugaacgaag caaagcccac agcuacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caacgaaagc 420

uucaauugga cugaagucac ucaaaacgga acaagcuccg cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41997
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63043

<400> 41997
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41998
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGK63045

<400> 41998
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa aaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcgcagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 41999
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK63047

<400> 41999

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaggggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcga uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua cagcuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuguu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42000
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK82158

<400> 42000
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42001
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK84857

<400> 42001
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacaggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauua cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42002
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK84860

<400> 42002
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaugacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugagg aagcucugag gcaaauacuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccugg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42003
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGK84863

<400> 42003
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaagacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42004
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL07713

<400> 42004
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacgcucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac agguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguugaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaacg ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42005
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09731

<400> 42005
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42006
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGL09732

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42007
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09734

<400> 42007
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu gauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42008
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09735

<400> 42008
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauua 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcucu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuagcauuug a 1701

<210> 42009
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09736

<400> 42009
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42010
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGL09737

<400> 42010

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42011
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09739

<400> 42011
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaaucagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42012
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09740

<400> 42012
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgagggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42013
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09741

<400> 42013
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaacguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accguuucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggauuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 42014
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<212> RNA
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<220>
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagacacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgagggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga ggucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcagca uuugcauuug a 1701

<210> 42015
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGL09744

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42016
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09745

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggggguacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga ugugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42017
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGL09746

<400> 42017

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42018
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGL09747

<400> 42018
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ggaaaugacg acagcacggc aacgcugugc cuuggacacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auauggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgagggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42019
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGL09748

<400> 42019
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42020
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09749

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccguugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42021
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09750

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42022
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09751

<400> 42022
augaagacca ucauugcuuu gagcuacauu cuaugucuag uuuucgcuca agaacuuccu 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgagggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42023
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09753

<400> 42023
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag gaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42024
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09754

<400> 42024
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuau agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uccccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

cuuuugcuuu guguugcuuu guugggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42025
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09756

<400> 42025
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaagcaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42026
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09758

<400> 42026
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa aauaugcaaa 180

cuaagagggg uagccccauu acauuuggga aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa acuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug aucaacaaag ucucuaucaa aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacug guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aacaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauacg uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42027
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09760

<400> 42027
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42028
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGL09761

<400> 42028

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca ccgggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42029
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09762

<400> 42029
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagug 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42030
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09763

<400> 42030
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42031
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09764

<400> 42031
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42032
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42032
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccuu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 42033
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09766

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaauaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42034
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09767

<400> 42034
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauua 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42035
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09769

<400> 42035

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42036
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09770

<400> 42036
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcguuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42037
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09771

<400> 42037
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauauaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42038
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09772

<400> 42038
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42039
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09773

<400> 42039
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cugaagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42040
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09774

<400> 42040
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42041
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09775

<400> 42041
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcucu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42042
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09776

<400> 42042
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42043
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09777

<400> 42043
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42044
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09778

<400> 42044
augaagacua ucauugcuuu gagcuacauu cuaugucuga uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acauuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augccgagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42045
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09779

<400> 42045
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaauaaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42046
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGL09780

<400> 42046

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuga caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccagguacgg acaaggacca aaucucccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42047
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09781

<400> 42047
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42048
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09782

<400> 42048
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42049
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09783

<400> 42049
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacucccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauuggcug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaacucaga accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gauuaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42050
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09785

<400> 42050
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42051
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09786

<400> 42051
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug ucgaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuga caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaag 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccagguacgg acaaggacca aaucucccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42052
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09787

<400> 42052
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacguucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42053
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09788

<400> 42053

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacguucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42054
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09789

<400> 42054
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacguucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42055
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09790

<400> 42055
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuuggggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42056
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09791

<400> 42056
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacaugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucucccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcaggcu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42057
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09792

<400> 42057
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42058
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09794

<400> 42058
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga uacacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42059
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09795

<400> 42059
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42060
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09797

<400> 42060
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucucuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42061
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09798

<400> 42061
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu uugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42062
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09799

<400> 42062
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucucuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42063
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09800

<400> 42063
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucu uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuucaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42064
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGL09801

<400> 42064

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc ucaggucacu aguugcuuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42065
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09802

<400> 42065
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc ucaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42066
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09803

<400> 42066
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc ucaggucacu aguugccuca uccggcacac uggaauuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagaacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42067
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09804

<400> 42067
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga cagaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42068
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09805

<400> 42068
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42069
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09806

<400> 42069
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09807

<400> 42070
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42071
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09808

<400> 42071

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaaugucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09809

<400> 42072
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42073
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09810

<400> 42073
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggagaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuag caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca ugggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42074
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09811

<400> 42074
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42075
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09812

<400> 42075
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaga uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucu uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42076
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09813

<400> 42076
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42077
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09814

<400> 42077
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09815

<400> 42078
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aguaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42079
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09816

<400> 42079
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09817

<400> 42080
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccccaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cagugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42081
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09818

<400> 42081
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGL09819

<400> 42082

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucu uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42083
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09820

<400> 42083
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagug 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aauagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09821

<400> 42084
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42085
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09822

<400> 42085
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu gguaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09823

<400> 42086
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42087
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09824

<400> 42087
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aacaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09825

<400> 42088
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42089
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09826

<400> 42089

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aacaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09827

<400> 42090
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42091
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09828

<400> 42091
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuacagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09829

<400> 42092
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacacug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggaau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucucg aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42093
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09830

<400> 42093
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacuaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaucuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09831

<400> 42094
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42095
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09832

<400> 42095
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaacaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09833

<400> 42096
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42097
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09881

<400> 42097
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga gcaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42098
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09882

<400> 42098
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42099
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL09883

<400> 42099
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucaa 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42100
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGL09884

<400> 42100

augaagacca ucauugcuuu gagcuacauu cuaugucuag uuuuugcuca agaacuuccu 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42101
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGL44438

<400> 42101
augaacacuc aaauccuggu auucgcucug auugcgauca uuccaacaaa ugcagacaaa 60

aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa aggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGN69267

<400> 42102
augaaggcaa uacugguagu cuugcuauau acauuuacaa ccggaaaugc agacacauua 60

uguauagguu accaugcaaa uaauucaacu gacacuguug acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacagac auaacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcuccuggga 240

aacccagagu gugaauuacu auucacagca agcucauggu cuuacauugu ggaaacaucu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug aaacgaacag aggugugacg gcagcauguc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcugguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua acaauaagga gaaggaaguc cucgugcuau ggggcauuca ccauccaccu 600

accaguacug accaacaaag ucucuaccag aaugcagaug ccuauguuuu ugugggguca 660

ucaaaauaca gcaagaaauu caagccagaa auagcaacaa gacccaaggu gagaggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg uucuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggagccauu gcuggcuuua uugagggggg auggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccgaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau ggucuucugg auguuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu aucacgauuc aaaugugaag 1380

aaccuauaug agaaaguaag aagccagcua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aaacuaaaca gagaggagau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 42103
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGN69278

<400> 42103
augaaggcaa uacuaguagu cuugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu accaugcaaa uaauucaacu gacacuguug acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacagac auaacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcuccuggga 240

aacccagagu gugaauuacu auucacagca agcucauggu cuuacauugu ggaaacaucu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug aaccgaacag aggugugacg gcagcauguc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcugguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauauua acaauaagga gaaggaaguc cucgugcuau ggggaauuca ccauccaccu 600

accaguacug accaacaaag ucucuaccag aaugcagaug ccuauguuuu ugugggguca 660

ucaaaauaca acaagaaauu caagccagaa auagcaacaa gacccaaggu gagaggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg uucuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggagccauu gcuggcuuua uugagggggg auggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccgaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau ggucuucugg auguuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu aucacgauuc aaaugugaag 1380

aaccuauaug agaaaguaag aagccagcua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aaacuaaaca gagaggagau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 42104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGN69302

<400> 42104
auggaagcca aacuauuugu auuauucugu gcauucacug cacugaaagc ugacaccauu 60

uguguaggcu accaugccaa caauuccaca gacacugucg acacaauacu ggagaaaaau 120

gugacuguua cccauucagu uaauuuacug gaaaacagcc auaaugggaa acucugcagc 180

cugaauggaa agauccccuu acaacuggggg aacugcaacg uagcaggaug gauccuuggc 240

aacccaaaau gugacuuacu gcucacagca aauucguggu cuuacauaau agagacuuca 300

aauucaaaag auggagcaug cuaccccgga gaauucgcug auuaugaaga guuaaaggag 360

caguugagua caguuucuuc auuugaaaga uuugaaauuu ucccaaaggc aaccucaugg 420

ccaaaccaug acacaaccag agguaccaca guugcaugcu cccacucugg agccaacagu 480

uuuuaucgga auuuacuaug gauaguaaag aaaggaaacu ccuauccuaa gcucagcaag 540

ucauacacaa acaauaaggg aaaggaagug cuuguaauuu ggggagugca ccacccuccg 600

accgacagug accaacaaac ccucuaccag aauaaucaua cauauguuuc aguuggauca 660

ucaaaauacu acaaaagguu cacaccagaa auaguagcaa gaccuaaagu cagggaacaa 720

gcaggcagaa ugaauuauua cuggacacug uuagaucaag gggacaccau aacuuuugaa 780

gccacuggga auuuaauagc accauggcac gcauuugcau ugaaaaaagg cucuaguucu 840

ggaauuauga ugucggaugc ucagguucac aauugcacua caaagugcca aacuccccau 900

ggggccuuga aaggcaaucu uccauuucag aauguacauc ccgucacuau uggagaaugc 960

cccaaauaug uuaaaagcac ccaacugaga auggcaacag gacuaaggaa uauacccucu 1020

auucaaucca gaggacuuuu cggggcaauu gccggauuca uugaaggagg auggacagga 1080

augguagaug gaugguaugg auaccaccau caaaaugagc agggaucugg uuacgcagca 1140

gaucagaaga gcacacaaau ugcaauugau ggaauaagca acaaagugaa cucaguaauu 1200

gaaaaaauga acauucaauu uacuucagug ggcaaggagu ucaauagucu agagaaaagg 1260

auggaaaauu ugaauaagaa gguugaugau gggguuuuugg auguauggac auauaacgcu 1320

gaguugcuca uucuacucga gaaugaaagg acucuagauu uccaugaccu uaacguaaaa 1380

aauuuauaug aaaaggucaa aucacaacua aggaacaaug ccaaggaaau cggaaauggc 1440

ugcuuugagu ucuaucacaa augugauaau gagugcaugg aaagcguaaa gaauggcaca 1500

uacaauuauc ccaaauauuc agaagaaucc aaguugaaua gggaggaaau agauggugug 1560

aaacuagaau caaugggaau ucaccagauu uuggcgaucu acuccacagu cgccaguucc 1620

cuggucuuau uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucauug 1680

caaugcagag uaugcauuua a 1701

<210> 42105
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGN69314

<400> 42105
auggaagcca aacuauuugu auuauucugu gcauucacug cacugaaagc ugacaccauu 60

uguguaggcu accaugccaa caauuccaca gacacugucg acacaauacu ggagaaaaau 120

gugacuguua cccauucagu uaauuuacug gaaaacagcc auaauggaaa acucugcagc 180

cugaauggaa agauccccuu acaacugggg aacugcaacg uagcaggaug gauccuuggc 240

aacccaaaau gugacuuacu gcucacagca aauucguggu cuuacauaau agagacuuca 300

aauucaaaag auggagcaug cuaccccgga gaauucgcug auuaugaaga guuaaaggag 360

caguugagua caguuucuuc auuugaaaga uuugaaauuu ucccaaaggc aaccucaugg 420

ccaaaccaug acacaaccag agguaccaca guugcaugcu cccacucugg agccaacagu 480

uuuuaucgga auuuacuaug gauaguaaag aaaggaaacu ccuauccuaa gcucagcaag 540

ucauacacaa acaauaaggg aaaggaagug cuuguaauuu ggggagugca ccacccuccg 600

accgacagug accaacaaac ccucuaccag aauaaucaua cauauguuuc aguuggauca 660

ucaaaauacu acaaaagguu cacaccagaa auaguagcaa gaccuaaagu cagggaacaa 720

gcaggcagaa ugaauuauua cuggacacug uuagaucaag gggacaccau aacuuuugaa 780

gccacuggga auuuaauagc accauggcac gcauuugcau ugaaaaaagg cucuaguucu 840

ggaauuauga ugucggaugc ucagguucac aauugcacua caaagugcca aacuccccau 900

ggggccuuga aaggcaaucu uccauuucag aauguacauc ccgucacuau uggagaaugc 960

cccaaauaug uuaaaagcac ccaacugaga auggcaacag gacuaaggaa uauacccucu 1020

auucaaucca gaggacuuuu cggggcaauu gccggauuca uugaaggagg auggacagga 1080

augguagaug gaugguaugg auaccaccau caaaaugagc agggaucugg uuacgcagca 1140

gaucagaaga gcacacaaau ugcaauugau ggaauaagca acaaagugaa cucaguaauu 1200

gaaaaaauga acauucaauu uacuucagug ggcaaggagu ucaauagucu agagaaaagg 1260

auggaaaauu ugaauaagaa gguugaugau gggguuuuugg auguauggac auauaacgcu 1320

gaguugcuca uucuacucga gaaugaaagg acucuagauu uccaugaccu uaacguaaaa 1380

aauuuauaug aaaaggucaa aucacaacua aggaacaaug ccaaggaaau cggaaauggc 1440

ugcuuugagu ucuaucacaa augugauaau gagugcaugg aaagcguaaa gaauggcaca 1500

uacaauuauc ccaaauauuc agaagaaucc aaguugaaua gggaggaaau agauggugug 1560

aaacuagaau caaugggaau ucaccagauu uuggcgaucu acuccacagu cgccaguucc 1620

cuggucuuau uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucauug 1680

caaugcagag uaugcauuua a 1701

<210> 42106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGN69326

<400> 42106
auggaagcca aacuauuugu auuauucugu gcauucacug cacugaaagc ugacaccauu 60

uguguaggcu accaugccaa caauuccaca gacacugucg acacaauacu ggagaaaaau 120

gugacuguua cccauucagu uaauuuacug gaaaacagcc auaaugggaa acucugcagc 180

cugaauggaa agauccccuu acaacugggg aacugcaacg uagcaggaug gauccuuggc 240

aacccaaaau gugacuuacu gcucacagca aauucguggu cuuacauaau agagacuuca 300

aauucaaaag auggagcaug cuaccccgga gaauucgcug auuaugaaga guuaaaggag 360

caguugagua caguuucuuc auuugaaaga uuugaaauuu ucccaaaggc aaccucaugg 420

ccaaaccaug acacaaccag agguaccaca guugcaugcu cccacucugg agccaacagu 480

uuuuaucgga auuuacuaug gauaguaaag aaaggaaacu ccuauccuaa gcucagcaag 540

ucauacacaa acaauaaggg aaaggaagug cuuguaauuu ggggagugca ccacccuccg 600

accgacagug accaacaaac ccucuaccag aauaaucaua cauauguuuc aguuggauca 660

ucaaaauacu acaaaagguu cacaccagaa auaguagcaa gaccuaaagu cagggaacaa 720

gcaggcagaa ugaauuauua cuggacacug uuagaucaag gggacaccau aacuuuugaa 780

gccacuggga auuuaauagc accauggcac gcauuugcau ugaaaaaagg cucuaguucu 840

ggaauuauga ugucggaugc ucagguucac aauugcacua caaagugcca aacuccccau 900

ggggccuuga aaggcaaucu uccauuucag aauguacauc ccgucacuau uggagaaugc 960

cccaaauaug uuaaaagcac ccaacugaga auggcaacag gacuaaggaa uauacccucu 1020

auucaaucca gaggacuuuu cggggcaauu gccggauuca uugaaggagg auggacagga 1080

augguagaug gaugguaugg auaccaccau caaaaugagc agggaucugg uuacgcagca 1140

gaucagaaga gcacacaaau ugcaauugau ggaauaagca acaaagugaa cucaguaauu 1200

gaaaaaauga acauucaauu uacuucagug ggcaaggagu ucaauagucu agagaaaagg 1260

auggaaaauu ugaauaagaa gguugaugau gggguuuuugg auguauggac auauaacgcu 1320

gaguugcuca uucuacucga gaaugaaagg acucuagauu uccaugaccu uaacguaaaa 1380

aauuuauaug aaaaggucaa aucacaacua aggaacaaug ccaaggaaau cggaaauggc 1440

ugcuuugagu ucuaucacaa augugauaau gagugcaugg aaagcguaaa gaauggcaca 1500

uacaauuauc ccaaauauuc agaagaaucc aaguugaaua gggaggaaau agauggugug 1560

aaacuagaau caaugggaau ucaccagauu uuggcgaucu acuccacagu cgccaguucc 1620

cuggucuuau uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucauug 1680

caaugcagag uaugcauuua a 1701

<210> 42107
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGN69338

<400> 42107

auggaagcaa aauuauuugu auuguucugu gcauucacug cacuaaaagc ugacaccauu 60

uguguaggcu accaugccaa caauuccaca gacacugucg acacaauacu ggagaaaaau 120

gugacuguua cccauucagu uaauuuacug gaaaacagcc auaaugggaa acucugcagc 180

cugaauggaa agauccccuu acaacugggg aacugcaacg uagcaggaug gauccuuggc 240

aacccaaaau gugacuugcu gcucacagcg aauucguggu cuuacauaau agagacuuca 300

aauucaaaaa auggagcaug cuaccccgga gaauucgcug auuaugaaga guuaaaggag 360

cagcugagua caguuucuuc auuugaaaga uuugaaauuu ucccaaaggc aaccucaugg 420

ccaaaccaug auaccaccag agguaccaca guugcaugcu cccacucugg agccaacagc 480

uuuuaucgga auuuacuaug gauaguaaag aaaggaaacu ccuauccuaa gcucagcaag 540

ucauacacaa acaauaaggg aaaggaagug cuuguaauuu ggggagugca ccacccuccg 600

accgacagug accaacaaac ccucuaccag aauaaucaua cauauguuuc aguuggauca 660

ucaaaauacu acaaaagguu cacaccagaa auaguagcaa gaccuaaagu cagagaacaa 720

gcaggcagaa ugaauuauua cuggacacug uuacaucaag gggacaccau aacuuuugaa 780

gccacuggga auuuaauagc accauggcac gcauuugcau ugaaugaagg cucuaguucu 840

ggaauuauga ggucggaugc ucagguucac aauugcacua caaagugcca aacuccccau 900

ggggccuuga aaggcaaucu uccuuuucag aauguacauc ccgucacuau uggagaaugc 960

cccaaauaug uuaaaagcac ccaacugaga auggcaacag gacuaaggaa uauccccucu 1020

auucaaucca gaggacuuuu cggggcaauu gccggauuca uugaaggagg auggacagga 1080

augguagaug gaugguaugg auaucaccau cgaaaugagc agggaucugg uuacgcagca 1140

gaucagaaaa gcacacaaau ugcaauugau gggauaagua acaaagugaa cucagugauu 1200

gaaaaaauga acauucaauu uacuucagug ggcaaggagu gcaauagucu agagaaaagg 1260

auggaaaauu ugaauaagaa gguugaugau gggguuuuugg auguauggac auauaacgcu 1320

gaguugcuca uuuuacucga gaaugaaagg acucuagauu uccaugaccu uaacguaaaa 1380

aauuuauaug aaaaggucaa aucacaacua aggaacaaug ccaaggaaau cggaaauggc 1440

ugcuuugagu ucuaucacaa augugauaau gagugcaugg aaagcguaaa gaauggcaca 1500

uacaauuauc ccaaauauuc agaagaaucc aaauuaaaua gggaggaaau agauggugug 1560

aaacuagaau caaugggaau ucaccagauu uuggcgaucu acuccacagu cgccaguucc 1620

cuggucuuau uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucauug 1680

caaugcagag uaugcauuua a 1701

<210> 42108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00265

<400> 42108
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaauacu cgaaaagaau 120

gugacaguga cacacucugu caaccugcuc gaagacagcc acaacgggaa auuauguaga 180

uuaaaaggga uagccccacu acaauuggggg aaauguaaca uugccggaug gaucuuggga 240

aauccagaau gcgaaucacu gcuuucagag agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaacaug uuacccagga gauuucaucg acuaugagga acugagagag 360

caauugagcu caguaacauc auucgaaaga uucgaaauau uccccaagga aaccucaugg 420

cccaaacaca acacaaccaa aggaguaacg gcagcaugcu cccaugcggg aaaaugcagu 480

uuuuacagaa auuugcuaug gcugacggag aaggauggcu cauacccgaa ucugaauaau 540

uccuauguga acaagaaagg gaaagaaguc cuuguacuau gggguguuca ucacccgucc 600

aacauaaagg aucaacagac ccucuaucag aaagaaaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acaggagauu caccccggaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa ugaacuauua cuggaccuug cuagaacccg gagacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuuugcac ugaguagagg cuuuggguca 840

ggcaucauca ccucaaaugc aucaaugcau gaguguaaca cgaaguguca aacaccccag 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauaug ucaggaguac caaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuauu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaacuu agaaaaaagg 1260

auggaaaacc uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acucuggauu uccaugacuc aaaugugaag 1380

aaucuguaug aaaaaguaaa aagccaauua aggaauaaug ccaaagaaau aggaaacggg 1440

uguuuugagu ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuauc caaaauauuc agaagaauca aaguugaaca gggaaaaaau agauggagug 1560

aaauuggaau caauggggu cuaucagauu uuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42109
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00277

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaacgggaa auuaugcaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gcuuucuaag agaucauggu ccuacauugc agaaacacca 300

aacucugaga auggaacaug uuacccagga gauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaccaca acauaaacau aggaguaacg gcagcaugcu cccaugcggg gaaaagcagu 480

uuuuacaaaa auuugcucug gcugacggag aaagauggcu cauacccaaa ucugaacaag 540

uccuauguga acaagaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagaga aucaaaagac ccucuaucgg aaagaaaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acaggagauu caccccggaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa ugaacuauua cuggacuuug cuagaacccg gagacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac uaaguagagg ccuuggauca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuccag aauauacacc cauucacaau aggagagugc 960

ccaaaauacg ucaggaguac caaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugaaggggg augggcugga 1080

augauagaug gaugguaugg uuaccaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa auaagguaaa cucuguuauc 1200

gagaaaauga acacucaauu cacugcugug gguaaagaau ucaacaaauu agaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaacgaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauua aggaauaaug ccaaagaaau aggaaacggg 1440

uguuuugagu ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaauauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caauggggu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00289

<400> 42110
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaacgggaa auuaugcaga 180

uuaaaaggaa uagccccacu acaauuggg aaauguaaca uugccggaug gaucuuggga 240

aacccagaau gcgaaucauu gcucucuaau agaucauggu ccuacauugc agaaacacca 300

aacucugaga auggaauaug uuacccagga gauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagcucaugg 420

cccaaacaca acauaaccag aggaguaacg guagcaugcu cccacgcgaa gaaaagcagu 480

uuuuacaaaa auuugcucug gcuaacggag gcaaauggcu uauacccaag ucugagcaag 540

uccuauguga acgacagaga gaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagagg aucaaaggac ccucuaucgg aaagaaaaug cuuaugucuc uguggugucu 660

ucaaauuaua acaggagauu caccccggaa auagcagaaa gacccaaagu aagaggucaa 720

ccagggagaa ugaacuauua cuggacuuug cuagaacccg gagacaaaau aauauuugag 780

gcaaauggaa accuaauagc gccaugguau gcuuucgcac ugaguagagg cccuggauca 840

ggaaucauca ccuccaacgc aucaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagccauaa acaguagccu cccuuuucag aacauacacc cagucacaau aggagagugc 960

ccaaaauaug ucaggaguac caaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugaaggggg auggacugga 1080

augguggaug gaugguaugg uuaccaucau cagaaugagc agggaucugg cuaugcugcg 1140

gaccaaaaaa gcacacaaaa ugccauuaac gggauuacaa auaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagagu ucaacaaauu ggaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuauugg uucuacugga aaaugaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauug agaaauaaug caaaggaaau aggaaacggg 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaguauuc agaggaauca aaguuaaaca gggcaaaaau ugauggagua 1560

aaacuggaau caauggggu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuuuugga uguguuccaa ugggucuuug 1680

caaugcagaa uaugcaucug a 1701

<210> 42111
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00301

<400> 42111
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uguauaggcu accaugcaaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaaugggaa auuaugcaga 180

uuaaaaggaa aagccccacu acaauugggg aacuguaaca uugccggaug ggucuuagga 240

aacccagaau gcgaaucauu gcucuccaau agaucauggu ccuacauugc agaaacacca 300

aacucugaga augggacaug cuacccaggg gauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaccaca caaccagagg agugacggca gcaugccccc augcgaggaa aagcaguuuu 480

uacaaaaauu uggucuggcu gacggaggca aauggcucau acccaaaucu gagcaggucc 540

uaugugaaca aucaagagaa agaaguccuu gugcuauggg gaguucauca cccgucuaac 600

auagaggaac aaagggcacu cuaucggaaa gauaaugcuu augucucugu agugucuuca 660

aauuauaaca ggagauucac cccagaaaua gcaaaaaggc ccaaaguaag agaucaauca 720

gggagaauga acuauuacug gacuuugcua gaacccggag acacaauaau auuugaggca 780

acuggaaauc uaauagcacc augguaugcu uucgcacuga guagaggccc uggaucaggg 840

auaaucaccu caaacgcacc acuggaugaa ugugacacaa agugucaaac accccaggga 900

gcuauaaaca guagucuccc uuuucagaau auacacccug ucacaauagg agagugccca 960

aaauacguca ggaguacgaa auugaggaug guuacaggac uaaggaacau cccauccguu 1020

caauccaggg gucuguuugg agccauugcc gguuucauug aagggggaug gacugggaug 1080

auggauggau gguaugguua ccaucaucag aacgaacagg gaucuggcua ugcugcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaua aggugaacuc uguuaucgag 1200

aaaaugaaca cucaauucac agcugugggu aaagaauuca acaaauuaga aaaaagaaug 1260

gaaaacuuaa auaaaaaggu ugaugaugga uuuauggaua uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuuuc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaaa ccaauuaagg aauaaugcaa aggaacuagg aaaugggugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaaaaaa uggaacuuau 1500

gacuacccaa aauauucaga ggaaucaaaa uuaaacaggg aaaagauuga uggagugaaa 1560

uuggaaucaa ugggggucua ucggauucug gcgaucuacu caacugucgc caguucacua 1620

gugcuucugg ucucccuggg ggcaaucagc uucuggaugu guucuaaugg gucguuacag 1680

ugcagaauau gcaucuga 1698

<210> 42112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00313

<400> 42112
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaucgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcaccc uggaguuuau caaugaaggc 420

uucaauugga cugggggucac ucagaauggg ggaagcuaug cuugcaaaag gggaccugau 480

aacaguuucu ucaguagacu gaacugguug uacaaaucag aaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacugu acauuugggg aguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaauc ccgaaugucg ggucuagacc cuggguaagg 720

ggucugucua guggaauaag caucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaccugca guucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

ugucccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42113
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00325

<400> 42113
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ggaaaugaca acaacagcac agcaacgcug ugccugggac aucaugcggu gccaaacgga 120

acgcuaguga aaacaaucac gaaugaucag auugaaguga cuaaugcuac ugagcugguu 180

cagaguuccu caacggguaa aauaugcaac aauccucauc gaauccuuga uggaauaaac 240

ugcacacuga uagaugcucu auuggggggac ccucauugug auggauuuca aaaugagaaa 300

ugggaccuuu ucguugaacg cagcaaagcu uucagcaacu guuacccuua ugaugugcca 360

gauuaugccu cccuuagguc acuaguugcc ucgucaggca cucuggaguu uaucaaugaa 420

ggcuucaauu ggacuggggu cacucagaau gggggaagca augcuugcaa aagaggaccu 480

gauagcgguu uuuucaguag acugaacugg uuguacaaau caggaagcac auauccagug 540

caaaacguga ccaugccaaa caaugacaau ucugacaaac uauacauuug gggguucac 600

cacccgagca cggacaaaga acaaaccaac cuauauguuc aagcaucagg gaaagucaca 660

gucuccacca agagaagcca gcaaacuaua aucccgaaug ucgggucuag acccugggua 720

aggggucugu cuaguagaau aagcaucuau uggacaauag uuaaaccggg agacauacug 780

guaauuaaua guaaugggaa ccuaauugcu ccucgggguu acuucaaaau gcgcacuggg 840

aaaagcucaa uaaugagguc agaugcaccu auuggcaccu gcagcucuga augcaucacu 900

ccaaauggaa gcauucccaa ugacaagccc uuucaaaacg uaaacaagau cacauauggg 960

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gagggaauga uagacgguug guacgguuuc aggcaucaaa auuccgaggg cacaggacaa 1140

gcagcagauc uuaaaagcac ucaagcagcc aucgaccaaa ucaaugggaa acugaauagg 1200

guaaucgaga agacgaacga gaaauuccau caaaucgaaa aggaauucuc agaaguagaa 1260

gggagaauuc aggaccucga gaaauacguu gaagacacua aaauagaucu cuggucuuac 1320

aaugcggagc uucuugucgc ucuggagaac caacauacaa uugaucugac ugacucggaa 1380

augaacaaac uguuugaaaa aacaaggagg caacugaggg aaaaugcuga ggacaugggc 1440

aaugguugcu ucaaaauaua ccacaaaugu gacaaugcuu gcauaggguc aaucagaaau 1500

gggacuuaug accaugaugu auacagagac gaagcauuaa acaaccgguu ucagaucaaa 1560

gguguugaac ugaagucagg auacaaagac uggauccugu ggauuuccuu ugccauauca 1620

ugcuuuuugc uuuguguugu uuugcugggg uucaucaugu gggccugcca aaaaggcaac 1680

auuaggugca acauuugcau uuga 1704

<210> 42114
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00337

<400> 42114
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau guacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacac uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42115
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00349

<400> 42115
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42116
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00373

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagagcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa uaugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42117
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00385

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagagcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42118
<211> 1698
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGO00397

<400> 42118

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagagcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42119
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGO00409

<400> 42119
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacggagaag aagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42120
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00421

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccaggau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucaaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaccgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaaaggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa aggucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

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gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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<210> 42121
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00433

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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

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uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu ggaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

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gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

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aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42122
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO00445

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gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaacgcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42123
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO02696

<400> 42123
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO02697

<400> 42124
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaag aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42125
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO02698

<400> 42125

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuacu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO02699

<400> 42126
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42127
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO02700

<400> 42127
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caagauacuc agaggaagca aaauuaaaca gagaagaaau agaugggaua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42128
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO02701

<400> 42128
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucaca uuuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugggc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42129
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO51374

<400> 42129
augaacacuc aaauccuggu auucgcucug auugcgauca uuccaacaaa ugcagacaaa 60

aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggauuugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42130
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGO86686

<400> 42130
augaagacua ucauugcuuu gagcuacauu uuaugucugg cuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagaccca cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuag aaaacagaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcgua uaugcccaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauccagacc cuggguaagg 720

gguaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauaaguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaacauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc auuauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42131
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16240

<400> 42131
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42132
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16241

<400> 42132
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacguucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42133
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16242

<400> 42133
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuacauua augauaaagg gaaagaaauc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uacgacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42134
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16243

<400> 42134
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42135
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16245

<400> 42135
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42136
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ16247

<400> 42136

augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42137
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16248

<400> 42137
augcaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaacugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggagcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42138
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16329

<400> 42138
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

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<210> 42139
<211> 1701
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguca acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucaa 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 42141
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauag aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

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<211> 1701
<212> RNA
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

cguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa cgaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcgcaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaacguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42145
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42145
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auagucaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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aggugcaaca uuugcauuug a 1701

<210> 42146
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42146
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaaaauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42147
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16340

<400> 42147
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca gaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa agccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16341

<400> 42148
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42149
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16342

<400> 42149
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16343

<400> 42150
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucu uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42151
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16344

<400> 42151
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16345

<400> 42152
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42153
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16346

<400> 42153
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca ggucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42154
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ16347

<400> 42154

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42155
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16348

<400> 42155
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42156
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16349

<400> 42156
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42157
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ16350

<400> 42157
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaagcaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugga ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47719

<400> 42158
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uguauagguu aucaugcaaa uaauucaacu gacacuguug auacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucuu gaagacagac auaacgggaa acuauguaaa 180

cuagggggga uagccccauu gcaccugggu aaauguaaca uugccggaug gcuuuuggga 240

aacccagaau gugaauuacu auucacagua agcucauggu cuuacauugu ggaaacaucg 300

aacucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcugagagag 360

caguugaguu cagugucauc auuugaaaga uucgagauau uccccaagac aaguucgugg 420

cccgaucaug aaacaaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcuggugaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauguua acaauaaagg gaaggaaguc cuugugcuau ggggcauuca ccauccaccu 600

accaguacug aucaacaaag ucucuaccaa aaugcagaug ccuauguuuu uguaggguca 660

ucaaaauaua acaggaaguu caagccagaa auagcagcaa gacccaaggu gagaggucaa 720

gcagggagga ugaacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa auuuaguggu accaagauau gcuuucgcaa ugaauagagg uucuggaucu 840

gguauuauaa uuucggaugc accaauucau gauuguaaca cgaaguguca aacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcugguuuua uugagggggg auggacagga 1080

augauagaug gaugguaugg uuaucaccau cagaauggac agggaucagg auaugcagcg 1140

gaccaaaaga gcacacaaaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacgcaauu cacggcagug gguaaagaau ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auguuuggac auacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acucuggauu uccacgacuc gaauguaaag 1380

aaccuguaug agaaagugag aagccagcua aggaacaaug ccaaagaaau ugggaauggc 1440

ugcuuugaau ucuaucacaa augugaugau acaugcaugg agagcgucaa aaauggaacu 1500

uaugauuacc caaaguacuc agaagaauca aaacuaaaca gagaggagau agauggagua 1560

aaguuggagu caacaaggau uuaccagauu uuggcgauuu auucaacugc cgccaguuca 1620

uugguacugu uggucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 42159
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47728

<400> 42159
augaaagcaa aacuacuggu ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uauguaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccuaac 600

auagggaacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaaccugggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uuugcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugggu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagua cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 42160
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47740

<400> 42160
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacacuacu cgagaagaau 120

gugacaguga cacauucugu uaaccugcuc gaagacagcc acaacgggaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacucacu gcuuccagcg agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggagcaug uuauccagga gauuucaucg acuaugagga acugagggag 360

caauugagcu caguaucauc auuagaaaga uucgaaauau uucccaagga aaguucaugg 420

cccaaccaca acacaaucaa aggaguaaca gcaucaugcu cccauagggg acaaagcagu 480

uuuuacagaa auuugcuaug gcugacgaag aagggggacu cauacccaaa gcugaacaau 540

uccuauguga acaauaaagg gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

agcaguaaug agcaacagag ucucuaucgu aaugaaaaug cuuaugucuc uguaugugucu 660

ucaaauuaua acaggagauu caccccggaa auagcugcaa gacccaaagu aagagaucaa 720

acugggagga ugaacuauua cuggaccuug cuagaacccg gagacacaau aauguuugag 780

gcaacuggua aucuaauagc accaugguau gcuuucgcac ugaguagagg guuuggguccc 840

ggcaucauca ccucaaacgc gucaaugcau gaguguaaca cgaaguguca aacaccccag 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauaug ucaggaguac caaauugagg augguuacag gacuaagaaa caucccaucc 1020

auucaaucca gaggucuauu uggagccauu gcugguuuua uugagggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcagcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaacuu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuag uucuacugga aaaugaaagg acuuuggauu uccaugacuu aaaugugaag 1380

aaucuguacg agaaaguaaa aagccaauua aagaauaaug ccaaagaaau cggaaauggg 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaaguguaag aaaugggacu 1500

uaugauuauc caaaauauuc agaagaauca aaguugaaca gggaaaagau agauggagug 1560

aaauuggaau caauggggu guaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42161
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47752

<400> 42161

augaaagcaa aacuacugau ccuguugugu gcacuuucag cuacagaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaaugggaa auuaugcaga 180

uuaaaaggaa aagccccacu acaauuggggg aaauguaaca uugccggaug ggucuuagga 240

aacccagaau gcgaaucauu gcuuuccaau agaucauggu ccuacauugc agaaacacca 300

aacucugaga augggauaug uuacccagga gauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaacaca acacaaucag aggagugacg gcagcaugcu cccaugcggg gaaaagcagu 480

uuuuacaaaa auuuggucug gcugacggag gcaaauggcu cauacccagc ucugagcacg 540

uccuauguga acaaucaaga gaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagagg aacaaaggac ccucuaucgg aaagauaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acaggagauu caccccagaa auagcaaaaa ggcccaaagu aagagaucaa 720

ccagggagaa ugaacuauua cuggacuuug cuagaacccg gagacacaau aauauuugag 780

gcaacuggaa aucuaauagc accaugguau gcuuucgcac ugaguagagg cccuggauca 840

ggaaucauca ccucaaacgc accaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuucag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaggaguac aaaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca ggggucuguu uggagccauu gccgguuuca uugaaggggg auggacuggg 1080

augauggaug gaugguaugg uuaccaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa auaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg auauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauua aggaauaaug caaaggaacu aggaaacggg 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaauauuc agaggaauca aaguuaaaca gggaaaagau ugauggagug 1560

aaauuggaau caaugggggu cuaucggauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuua 1680

cagugcagaa uaugcaucug a 1701

<210> 42162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47764

<400> 42162
augaaagcaa aacuacugau ccuguuaugu gcacuuacag cuacagaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaacgggaa auuaugcaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gcuuucuaag agaucauggu ccuacauugc agaaacacca 300

aacucugaga auggagcaug uuacccagga gauuucgccg acuaugagga acugagggag 360

caauugagcu cagugucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaacaca acauaaccag aggaguaacg gcagcaugcu cccaugcggg gaaaagcagu 480

uuuuacaaaa auuugcucug gcugacggag acagauggcu cauacccaaa gcugagcaag 540

uccuauguga acaauaaaga gaaagaaguc cuugugcuau gggguguuca ucacccgucu 600

aacauagagg aucaaaagac ccucuaucgg aaagaaaaug cuuaugucuc uguagugucu 660

ucaaauuaua acaggagauu caccccggaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa uuaacuauua cuggacuuug cuagaacccg gagacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagaga cuuuggauca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuucag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaagaguac caaauugagg augguuacag gauuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugagggggg auggacugga 1080

augauagaug gaugguaugg uuaccaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugcaauuaac gggauuacaa auaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau gggguuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauua aggaauaaug caaaggaaau aggaaacggg 1440

uguuuugagu ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaauauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caauggggu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

caaugcagaa uaugcaucug a 1701

<210> 42163
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47776

<400> 42163
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaau 120

gugacaguga cacacucugu aaaccuacuc gaagacagcc acaacgggaa auuaugcaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gcuuucuaag agaucauggu ccuacauugc agaaacacca 300

aacucugaga auggaacaug uuacccagga gauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aagaucaugg 420

cccaaacaca acauaaacau aggaguaacg gcagcaugcu cccaugcggg gaaaagcagu 480

uuuuacaaaa auuugcucug gcugacggag aaagauggcu cauacccaaa ucugaacaag 540

uccuauguga acaagaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagagg aucaaaagac ccucuaucgg aaagaaaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acaggagauu caccccggaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa ugaacuauua cuggacuuug cuagaacccg gagacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac uaaguagagg ccuuggauca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuccag aauauacacc cauucacaau aggagagugc 960

ccaaaauacg ucaggaguac caaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggagccauu gccgguuuca uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaccaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa auaagguaaa cucuguuauc 1200

gagaaaauga acacucaauu cacugcugug gguaaagaau ucaacaaauu agaaaaaaga 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaacgaaagg acuuuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aaaccaauua aggaauaaug ccaaagaaau aggaaacggg 1440

uguuuugagu ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuacc caaaauauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caauggggu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42164
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47788

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaac 120

gugacaguga cacacucugu caaccuacuc gaggacaguc acaacggaaa acuaugcaga 180

cuaaaaggaa uagccccacu acaauuggg aaaugcaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag aaaucauggu ccuacauugc agaaacacca 300

aacucugaga auggaacaug uuacccagga uauuucgccg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aaggucaugg 420

cccaaacaca acguaaccag aggaguaacg gcagcaugcu cccauaaggg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aaagauggcu cguacccaaa ucugagcaag 540

uccuauguga acaauaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagagg accaaaagac ccucuaucgg aaagaaaaug cuuaugucuc uguaugugucu 660

ucaaauuaua acaggagauu caccccagaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccauggcau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucgauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaggaguac aaaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggggccauu gccgguuuca uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaagg 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuauc caaaauauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42165
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42165
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uguauaggcu aucaugcgaa caacucaacc gauacuguug acacaauacu cgaaaagaau 120

gugacaguga cacacucugu caaccuacuc gaagacagcc acaacgggaa auuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca uugcuggaug gauccuggga 240

aacccagaau gcgaaucacu gcuuucagag agaucauggu ccuacauugu ugaaauacca 300

aacucugaga auggaacaug uuacccagga gauuuuaccg acuaugagga acugagggag 360

caauugagcu cuguaucauc auucgaaaga uucgaaauau uccccaagga aagcucaugg 420

cccaaacaca acacagccag aggaguaacg gcagcaugcu cccaugcggg aaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aaggauggcu cauauccgaa ucugaaaaau 540

uccuauguga acaagaaagg gaaagaaguc cuuguacuau gggguguuca ucacccgucc 600

agcauaaagg aacaacagac ccucuaucag aaagaaaaug cuuaugucuc uguaguaucu 660

ucaaauuaca acaggagauu caccccggaa auagcagaaa gacccaaagu aagagaucaa 720

gcagggagga ugaacuauua cuggaccuug cuagaacccg gagacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggguca 840

ggcaucauca ccucaaacgc aucgaugcau gagugugaca cgaaguguca aacaccccag 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaggaguac caaauugagg augguuacag gacuacggaa caucccauca 1020

auucaaucca gaggucuauu uggagccauu gccgguuuca uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaagauga acacucaauu cacagcugug gguaaagaau ucaacaacuu agaaaaaagg 1260

auggaaaacu uaaacaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguuga uucuacugga aaaugaaagg acucuggauu uccaugacuc aaaugugaag 1380

aaucuguaug aaaaaguuaa aagccaauua aggaauaaug ccaaagaaau aggaaacggg 1440

uguuuugagu ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugauuauc caaaauauuc agaagaauca aaguugaaca gggaaaaaau agauggagug 1560

aaauuggaau caauggggu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuc uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42166
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47811

<400> 42166
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgaaaagaac 120

gugacaguga cacacucugu caaccuacuc gaggacaguc acaacggaaa acuaugcaga 180

cuaaaaggaa uagccccacu acaauuggggg aaaugcaaca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag aaaucauggu ccuacauugc agaaacacca 300

aacucugaga auggaacaug uuacccagga uuuuucgccg auuaugagga acugagggag 360

caauugagcu caguaucauc auucgagaga uucgaaauau uccccaagga aaggucaugg 420

cccaaacaca acguaaccag aggaguaacg gcagcaugcu cccauaaggg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aaaaauggcu cguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagagg accaaaagac caucuaucgg aaagaaaaug cuuaugucuc uguaugugucu 660

ucaaauuaua acaggagauu caccccagaa auagcagaaa gacccaaagu aagaggucaa 720

gcagggagaa uuaacuacua cuggacucug cuggaaccug gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccauggcau gcuuucgcac ugaguagagg cuuuggguca 840

gggaucauca ccucaaacgc aucgauggau gaaugugaca cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaggaguac aaaauugagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gaggucuguu uggggccauu gccgguuuca uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauugac gggauuacaa acaaggugaa cucugucauc 1200

gagaaaauga acacucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaagg 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggaaacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaaguguaaa aaauggaacu 1500

uaugacuauc caaaauauuc agaggaauca aaguuaaaca gggaaaaaau ugauggagua 1560

aaguuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42167
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47823

<400> 42167
augaaagcaa aacuacuagu ccuguuaugu gcauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugucga 180

cuaaagggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccaaaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccaa aggaguaacg acaucaugcu cccauaaugg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aagaauggcu uguacccaaa ucugagcaag 540

uccuauguaa acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauaaggg accaaagggc caucuaucau acagaaaaug cuuaugucuc uguaugucu 660

ucacauuaua gcagaagauu caccccagaa auagcaaaaa gacccaaagu aagaggucaa 720

gaaggaagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugacg cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaccaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugug ggcaaagaau ucaacaaauu agaaagaagg 1260

auggaaaacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaauggaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauug aagaauaaug ccaaagaaau agggaacggg 1440

uguuuugaau ucuaucacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cgaagaauca aaguuaaaca ggggaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucuccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 42168
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47835

<400> 42168
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

auagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauua ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucaauugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuaau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaaccacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccaccaaga gaagccagca aacuauaacc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauccuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggca 960

uguccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauugaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42169
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47847

<400> 42169
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacgggaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacucauu gcuuccagcg aguucauggu ccuacauugu agaaacacca 300

aacucuaaga auggaauaug uuauccagga gauuucaucg acuaugagga acugagggag 360

caauugagcu caguaucauc auucgaaaga uucgaaauau uucccaagga aagcucaugg 420

cccaaacaca acacaaccaa aggagugacg gcagcaugcu cccaugcggg aaagagcagu 480

uuuuacagaa auuugcuaug gcugacgaag aaggaggacu cauacccaaa gcugagcaau 540

uccuauguga acaagaaagg gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacaguaaag agcaacagac ucucuaucag aaugaaaaug cuuaugucuc uguaguguc u 660

ucaaauuaua acaggagauu caccccggaa auagcagaaa gacccaaagu aagagaucaa 720

gcugggagga ugaacuauua cuggaccuug cuagaacccg gagacacaau aauauuugag 780

gcuaauggaa aucuaauagc accaugguau gcuuucgcac ugaguagagg cuuuggguc c 840

ggcaucauca ccucaaacgc aucaaugcau gaguguaaca cgaaguguca aacaccccag 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaagagugc caaauugagg augguuacag gacuaagaaa caucccaucc 1020

auucaaucca gaggucuauu uggagccauu gccgguuuua uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcagcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acacucaauu cacugcugug gguaaagaau ucaacaacuu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuccugg acauuuggac guauaaugca 1320

gaauuguuag uucuacugga aaaugaaaga acucuggauu uccaugacuc aaaugugaaa 1380

aaucuguaug agaaaguaaa aauccaauua aagaauaaug ccaaagaaau cggaaauggg 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaagugugag aaaugggacu 1500

uaugauuauc caaaauauuc aaaagaauca aaguugaaca gggaaaagau agauggagug 1560

aaauuggaac caauggggu cuaucagauu cuggcgauau acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa ugggucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42170
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47870

<400> 42170
augaaggcaa uacuauuagu cuuguuaugu acauuugcag ccacaaaugc agacacacua 60

uguauagguu aucaugcaaa uaauucaacu gacacuguug auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucuu gaagacagac auaacgggaa acuauguaaa 180

cuggggggga uagccccauu gcacuugggu aaauguaaca uugccggaug gcuuuuggga 240

aacccagaau gugaauuacu acucacagua agcucauggu cuuacauugu ggaaacaucg 300

aacucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcugagagag 360

caguugagcu cagugucauc auuugaaaga uucgagauau uccccaagac aaguucgugg 420

cccaaucaug aaacaaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcuggugaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauguua acaauaaagg gaaggaaguc cuugugcuau ggggcauuca ucauccaccu 600

accaguacug aucaacaaag ucucuaccaa aaugcagaug ccuauguuuu uguaggguca 660

ucaaaauaua acagaaaguu caagccagaa auagcagcaa gacccaaggu gagaggucaa 720

gcagggagga ugaacuauua cuggacacua auagaaccug gagacacaau aacauuugaa 780

gcaacuggaa aucuaguggu accaagauau gcuuucgcaa ugaauagagg uucuggaucu 840

gguauuauaa uuucggaugc accaguucau gauuguaaca cgaaguguca aacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcugguuuua uugagggggg auggacagga 1080

augauagaug gaugguaugg uuaucaccau cagaaugaac agggaucagg auaugcagcg 1140

gaccaaagga gcacacaaaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacgcaauu cacggcagug gguaaagaau ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auauuuggac auacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acucuggauu uccacgacuc gaauguaaag 1380

aaccuguaug agaaaguaag aagccagcua aggaacaaug ccaaagaaau ugggaauggc 1440

ugcuuugaau ucuaucacaa augugaugau acaugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaguacuc agaagaauca aagcuaaaca gagaggagau agauggagua 1560

aaguuggagu caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uggucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 42171
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47882

<400> 42171
augaaggcaa uacuauuagu cuuguuaugu acauuugcag ccacaaaugc agacacacua 60

uguauagguu aucaugcaaa uaauucaacu gacacuguug auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucuu gaagacagac auaacgggaa acuauguaaa 180

cugggggga uagccccauu gcacuugggu aaauguaaca uugccggaug gcuuuuggga 240

aacccagaau gugaauuacu acucacagua agcucauggu cuuacauugu ggaaacaucg 300

aacucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcugagagag 360

caguugagcu cagugucauc auuugaaaga uucgagauau uccccaagac aaguucgugg 420

cccaaucaug aaacaaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcuggugaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuauguua acaauaaagg gaaggaaguc cuugugcuau ggggcauuca ucauccaccu 600

accaguacug aucaacaaag ucucuaccaa aaugcagaug ccuauguuuu uguaggguca 660

ucaaaauaua acagaaaguu caagccagaa auagcagcaa gacccaaggu gagaggucaa 720

gcagggagga ugaacuauua cuggacacua auagaaccug gagacacaau aacauuugaa 780

gcaacuggaa aucuaguggu accaagauau gcuuucgcaa ugaauagagg uucuggaucu 840

gguauuauaa uuucggaugc accaguucau gauuguaaca cgaaguguca aacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcugguuuua uugagggggg auggacagga 1080

augauagaug gaugguaugg uuaucaccau cagaaugaac agggaucagg auaugcagcg 1140

gaccaaagga gcacacaaaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacgcaauu cacggcagug gguaaagaau ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auauuuggac auacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acucuggauu uccacgacuc gaauguaaag 1380

aaccuguaug agaaaguaag aagccagcua aggaacaaug ccaaagaaau ugggaauggc 1440

ugcuuugaau ucuaucacaa augugaugau acaugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaguacuc agaagaauca aagcuaaaca gagaggagau agauggagua 1560

aaguuggagu caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uggucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 42172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ47894

<400> 42172

augaagacua ucauugcuuu gagcuacauu uucugucugg uucucggcca agacuuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cggguaaaau augcaacaau ccucaucgaa uccuugaugg aauaaacugc 240

acacugauag augcucuguu gggggacccu cauugugaug gcuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau caaugaaggc 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccugau 480

agcgguuuuu ucaguagacu gaacugguug uacaaaucag gaagcgcaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuuggggg gguucaccac 600

ccgagcacgg accaagaaca aaccaaccua uauguucaag caucagggag agucacaguc 660

uccacaaaga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua aaccgggaga cauacuggua 780

auuaauagua augggaaccu aauugcuccu cgggguuacu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auaugggggca 960

uguccccaagu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaacu gaauagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaccaa cauacaauug aucugacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaggaggcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42173
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47906

<400> 42173
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gauucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47918

<400> 42174
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acaacacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42175
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47930

<400> 42175
augaaggcaa accuacuggu ccuguuaugu gcacuugcag cugcagaugc agacacaaua 60

uguauaggcu accaugcgaa caauucaacc gacacuguug acacagcacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacaa aggaguaacg gcagcaugcu cccaugcggg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacggag aaggagggcu cauacccaaa gcugaaaaau 540

ucuuauguga acaagaaagg gaaagaaguc cuuguacugu gggguauuca ucacccgucu 600

aacaguaagg aucaacagaa ucucuaucag aaugaaaaug cuuaugucuc uguagugacu 660

ucaaauuaua acaggagauu uaccccggaa auagcagaaa gacccaaagu aagagaucaa 720

gcugggagga ugaacuauua cuggaccuug cuaaaacccg gagacacaau aauauuugag 780

gcaaauggaa aucuaauagc accaauguau gcuuucgcac ugaguagagg cuuuggguсc 840

ggcaucauca ccucaaacgc aucaaugcau gaguguaaca cgaaguguca aacaccccug 900

ggagcuauaa acagcagucu cccuuuccag aauauacacc cagucacaau aggagagugc 960

ccaaaauacg ucaggagugc caaauugagg augguuacag gacuaaggaa cauuccgucc 1020

auucaaucca gaggucuauu uggagccauu gccgguuuua uugaaggggg auggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac agggaucagg cuaugcagcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac gggauuacaa acaaggugaa cucuguuauc 1200

gagaaaauga acauucaauu cacagcugug gguaaagaau ucaacaaauu agaaaaaagg 1260

auggaaaauu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugcu 1320

gaauuguuag uucuacugga aaaugaaagg acucuggauu uccaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau cggaaaugga 1440

uguuuugagu ucuaccacaa gugugacaau gaaugcaugg aaaguguaag aaaugggacu 1500

uaugauuauc ccaaauauuc agaagaguca aaguugaaca gggaaaaggu agauggagug 1560

aaauuggaau caauggggau cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc aguuucugga uguguucuaa uggaucuuug 1680

cagugcagaa uaugcaucug a 1701

<210> 42176
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47942

<400> 42176
augaaggcaa accuacuggu ccuguuaugu gcacuugcag cugcagaugc agacacaaua 60

uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42177
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47954

<400> 42177
augaaggcaa accuacuggu ccuguuaugu gcacuugcag cugcagaugc agacacaaua 60

uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucggaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42178
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ47966

<400> 42178
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagagcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42179
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47978

<400> 42179

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

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<210> 42180
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ47990

<400> 42180
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucaaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42181
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ48002

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucaaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaaaggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42182
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ48014

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccaggau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucaaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaaaggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42183
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ48026

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccaggau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucaaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaaaggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa agaucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42184
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ48038

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccaggau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucaaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaaaggga agaaguccuu guacuguggg guauucauca cccgccuaac 600

agugaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa aggucaagcu 720

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aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42185
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ48050

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccaggau gcgacccacu gcuuccagug ggaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucaaaauau uucccaaaga aagcucaugg 420

cccgaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag gagagcucau acccagagcu gaaaaauucu 540

uaugugaaca aaaaaaggga agaaguccuu guacuguggg guauucauca cccgccugac 600

agugaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaaa aggucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuuaaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacau uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42186
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ80946

<400> 42186
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ggauaccauu ccaacaauuc cacagaaaag gucgacacaa uucuagagag gaaugucacc 120

gugacucacg cucaagacau ucuugagaag acucacaaug gaaaauuaug caaacugaau 180

ggaaucccuc cacuugaauu gggagauugc agcaucgccg gauggcuccu ugggaaucca 240

gaaugugaua ggcuucuaac ugugccagaa uggucauaua uaauggagaa agaaaaucca 300

aggaacgguu ugugcuaccc aggcaguuuc aaugauuaug aagaauugaa acaccuccuu 360

aguaguguaa cacacuucga gaaagugaag auuuugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgca guaucuggua auccgucauu cuucaggaac 480

augucuggu ugacaaagaa agggccgaau uacccaguug ccaaaggauc auacaauaau 540

acaaguggg accaaaugcu gaucauuugg ggggugcauc accccaauga ugaagcugaa 600

caaaggacau uguaucagaa ugucgggacu uauguaucag uaggaacauc gacacugaac 660

aaaagaucag uuccagaaau agccacaaga ccuaagguga auggacaagg aggcagaaug 720

gaauucucgu ggacuauauu ggauguguug gacaccauaa auuucgagag uacugguaau 780

cuaauugcac cggaauaugg cuuuaaaaua uccaaacggg guaguucagg aaucaugaaa 840

acggaaggaa cacuugaaaa cugcgaaacu aaaugccaaa cucccuuggg agcaauaaau 900

acaacauugc ccuuucauaa uauccaccca cugaccauug gugagugccc caaauaugua 960

aaaucggaaa gguuagucuu ggcaacagga uuaagaaaug ucccucagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaagggggau ggcaaggaau gguugauggu 1080

ugguauggau aucaucacag caaugaucaa ggauccggcu augcagcaga caaagagucc 1140

acucaaaagg caauugaugg aaucaccaac aagguaaacu cuguaauuga gaaaaugaac 1200

acucaauucg aggcuguugg aaaagaauuc aguaauuugg agaaaagacu ggaaaaccug 1260

aauaaaaaga uggaggacgg auuccuagau guguggacau acaaugcuga gcuucuaguu 1320

cuaauggaaa augagaggac acuugacuuu caugacucca auguaaagaa ucuauaugac 1380

aaagucagaa ugcaacugag ggacaaugca aaagaacuag ggaauggaug uuuugaauuu 1440

uaucauaaau gugaugauga augcaugaau agcguaaaga augggacaua ugauuauccc 1500

aaguaugaag aggagucuaa acuaaacagg aaugagauca aaggaguaaa auugagcaac 1560

augggguuu aucaaauccu ugcaauuuau gcuacaguag caggcucccu gucacuggca 1620

aucaugauag cugggaucuc cuuauggaug ugcucuaacg ggucucugca augcaggauc 1680

ugcauauga 1689

<210> 42187
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ80947

<400> 42187
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ggauaccacu ccaacaauuc cacagaaaag guagacacaa uucuagagag gaauaucacu 120

gugacucacg cucaggacau ucuugagaag acucacaaug gaaaauuaug caaacuaaau 180

ggaaucccuc cacuugaauu gggaaacugc agcaucgcug gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaac ugugccagaa uggucauaua uaauggagaa agaaaaucca 300

agggaugguu ugugcuaccc aggcaguuuc aaugacuaug aagaauugaa acaccuccuu 360

aguaguguaa cacacuucga gaaagugaag auuuugccca aagauaggug gacacagcau 420

acaacaacug gagguucacg ggcuugcgca guaucuggua acccgucauu cuucagaaac 480

auggucuggu ugacaaagaa agggucgaau uacccaauug ccaagggauc auacaauaau 540

acaaguggg aacaaaugcu gaucauuugg ggaguacauc aucccaauga ugaugcugaa 600

caaagaacau uguaucagaa cgucgggacc uauguaucag uggggacauc gacauugaac 660

aaaagaucaa ucccagaaau agccacaaga ccuaaaguga auggacaggg aggcagaaug 720

gaauucucgu ggacuauauu ggauauguug gacaccauaa acuuugagag uacugguaau 780

cuaauugcac cagaauaugg auuuaaaaua uccaaacggg guagcucagg gaucaugaaa 840

acagaaggga cacuugaaaa cugcgaaacu aaaugccaaa cucccuuggg agcaauaaau 900

acaacauugc ccuuccauaa uauccaucca uugaccauug gugaaugucc caaauauguc 960

aaaucagaga gguuaguuuu ggcaacagga uuaagaaaug ucccucaaau ugaaucaaga 1020

gggcuguuug gggcaauagc ugguuucaua gaagggggau ggcaaggaau gguugauggu 1080

ugguauggau aucaucacag caaugaucaa ggauccgggu augcagcaga caaagagucc 1140

acucaaaagg caauugaugg aaucaccaau aagguaaacu cuguaauuga gaaaaugaac 1200

acccaauucg aggcuguugg gaaagaauuc aauaauuugg agaaaagacu ggaaaaccug 1260

aauaaaaaga uggaggacgg auuccuagau guguggacau acaaugcuga gcuucuaguu 1320

cuaauggaaa augaaagaac acuugacuuc caugacucca augucaagaa ucuauaugac 1380

aaagucagaa ugcaauugaa ggacaaugca aaagaacuag ggaauggaug uuucgaauuu 1440

uaccauaaau gugaugauga augcaugaau aguguaaaga augggacaua ugauuauccc 1500

aaauaugaag aggagucuaa auuaaacagg aaugagauca aaggagucaa auugagcaac 1560

augggggguuu aucaaauccu ugcaauuuau gcuacagugg caggcuccuu gucacuggca 1620

aucaugauag cugggggucuc cuuauggaug ugcucuaacg ggucucugca augcaggauc 1680

ugcauauga 1689

<210> 42188
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80948

<400> 42188
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ggauaccacu ccaacaauuc cacagaaaag guagacacaa uucuagagag gaaugucacu 120

gugacucacg cucaagacau ucuugagaag acucacaaug gaaaauuaug caaacuaaau 180

ggaaucccuc cacuugaauu gggaaacugc agcaucgcug gauggcuccu uggaaaucca 240

gaaugugaua ggcuccuaac ugugccagaa uggucauaua uaauggagaa agaaaaucca 300

aggaaugguu ugugcuaccc aggcaguuuc aaugacuaug aagaauugaa acaccuccuu 360

aguaguguaa cacacuucga gaaagugaag auuuugccca aagauaggug gacacagcau 420

acaacaacug gagguucacg ggcuugcgca guauuuggua acccgucauu cuucagaaac 480

augguguggu ugacaaagaa agggucgaau uacccaauug ccaagggauc auacaauaau 540

acaaguggg aacaaaugcu gaucauuugg ggaguacauc aucccaauga ugaugcugaa 600

caaagaacau uguaucagaa cgucgggacc uauguaucag uggggacauc gacauugaac 660

aaaagaucaa ucccagaaau agccacaaga ccuaaaguga auggacaggg aggcagaaug 720

gaauucucgu ggacuauauu ggauauguug gacaccauaa acuuugagag uacugguaau 780

cuaauugcac cagaauaugg auuuaaaaua uccaaacggg guagcucagg gaucaugaaa 840

acagaaggga cacuugaaaa cugcgaaacu aaaugucaaa cucccuuggg agcaauaaau 900

acaacauugc ccuuccauaa uauccaucca uugaccauug gugaaugucc caaauaugua 960

aaaucagaga gguuagucuu ggcaacagga uuaagaaaug ucccucaaau ugaaucaaga 1020

gggcuguuug gggcaauagc ugguuucaua gaagggggau ggcaaggaau gguugauggu 1080

ugguauggau aucaucacag caaugaucaa ggauccgggu augcagcaga caaagagucc 1140

acucaaaagg caauugaugg aaucaccaau aaggucaacu cuguaaucga gaaaaugaac 1200

acccaauucg aggcuguugg gaaagaauuc aauaauuugg agaaaagacu ggaaaaccug 1260

aauaaaaaga uggaggacgg auuccuagau guguggacau acaaugcuga gcuucuaguu 1320

cuaauggaaa augaaagaac acuugacuuc caugacucca augucaagaa ucuauaugac 1380

aaaaucagga ugcaauugaa ggacaaugca aaagaacuag ggaauggaug uuucgaauuu 1440

uaccauaaau gugaugauga augcaugaau agcguaaaga augggacaua ugauuauccc 1500

aaauaugaag aggagucuaa auuaaacagg aaugagauca aagggucaa auugagcaac 1560

augggguuu aucaaauccu ugcaauuuau gcuacagugg caggcuccuu gucacuggca 1620

aucaugauag cugggaucuc cuuauggaug ugcucuaacg ggucucugca augcaggauc 1680

ugcauauga 1689

<210> 42189
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ80949

<400> 42189
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ggauaccacu ccaacaauuc cacagaaaag guagacacaa uucuagagag gaaugucacu 120

gugacucacg cucaagacau ucuugagaag acucacaaug gaaaauuaug caaacuaaau 180

ggaaucccuc cacuugaauu gggagacugc agcaucgcug gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaac ugugccagaa uggucauaua uaauggagaa agaaaaucca 300

aggaaugguu ugugcuaccc aggcaguuuc aaugacuaug aagaauugaa acaccuccuu 360

aguaguguaa cacacuucga gaaagugaag auuuugccca aagauaggug gacacagcau 420

acaacaacug gagguucacg ggcuugcgca guaucuggua acccgucauu cuucagaaac 480

augucuggu ugacaaagaa agggucgaau uacccaauug ccaagggauc auacaauaau 540

acaaguggg aacaaaugcu gaucauuugg ggaguacauc aucccaauga ugaugcugaa 600

caaagaacau uguaucagaa cgucgggacc uauguaucag uggggacauc gacauugaac 660

aaaagaucaa ucccagaaau agccacaaga ccuaaaguga auggacaggg aggcagaaug 720

gaauucucgu ggacuauauu ggauauguug gacaccauaa acuuugagag uacugguaau 780

cuaauugcac cagaauaugg auuuaaaaua uccaaacggg guagcucagg gaucaugaaa 840

acagaaggga cacuugaaaa cugcgaaacu aaaugucaaa cucccuuggg agcaauaaau 900

acaacauugc ccuuccauaa uauccaucca uugaccauug gugaaugucc caaauaugua 960

aaaucagaga gguuagucuu ggcaacagga uuaagaaaug ucccucaaau ugaaucaaga 1020

gggcuguuug gggcaauagc ugguuucaua gaagggggau ggcaaggaau gguugauggu 1080

ugguauggau aucaucacag caaugaucaa ggauccgggu augcagcaga caaagagucc 1140

acucaaaagg caauugaugg aaucaccaau aaggucaacu cuguaauuga gaaaaugaac 1200

acccaauucg aggcuguugg gaaagaauuc aauaauuugg agaaaagacu ggaaaaccug 1260

aauaaaaaga uggaggacgg auuccuagau guguggacau acaaugcuga gcuucuaguu 1320

cuaauggaaa augaaagaac acuugacuuc caugacucca augucaagaa ucuauaugac 1380

aaaaucagga ugcaauugaa ggacaaugca aaagaacuag ggaauggaug uuucgaauuu 1440

uaccauaaau gugaugauga augcaugaau agcguaaaaa augggacaua ugauuauccc 1500

aaauaugaag aggagucuaa auuaaacagg aaugagauca aagggucaa auugagcaac 1560

augggguuu aucaaauccu ugcaauuuau gcuacagugg caggcuccuu gucacuggca 1620

aucaugauag cugggaucuc cuuauggaug ugcucuaacg ggucucugca augcaggauc 1680

ugcauauga 1689

<210> 42190
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80950

<400> 42190
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gggaaugaca gcaguacagc aacacugugc cugggacauc augcggugcu gaacgggaca 120

auagugaaga caaucaccga ugaucagauu gaggugacua augcuaccga gcugguucaa 180

agcucuucaa cagggaaaau augcaacaau ccucauaaga uccuugaugg aagggacugc 240

acacuaauag augcccugcu gggggauccu cauugcgaug ucuuucaaga ugaaacaugg 300

gaucuuuuug uggagcgaag cagcgcuuuc agcaauuguu acccuuauga uguaccagau 360

uaugccuccc uucgaucccu aguugcuuca ucaggcacac uagaguucau cacugagggu 420

uucacuugga caggaguaag ccagaaugga gggagcggug ccugcaaaag aggaccugcc 480

aacggcuucu ucaguagauu gaacugguug acuaagucag gaaacgcaua uccaguguug 540

aacgugacua ugccaaacag ugacaauuuu gacaaacuau acaucugggg uguucaccac 600

ccgagcacaa aucaagaaca gaccaaccug uauguucaag ccucagggag ggucacaguc 660

ucuaccagaa gaagucaaca gacuauaauc ccaaauauug gaucuagacc cugggugagg 720

ggccagucug gcagaauaag caucuauugg acaauaguca aaccuggga cguacuggua 780

aucaauagua auggaaaucu aauugcuccu cggggcuauu ucaagaugcg gacugggaaa 840

agcucaauaa ugagaucaga ugcaccuauu gaaacuugca uuucagaaug cauuacucca 900

aauggaagca ucccuaauga caagcccuuu caaaauguaa acaagaucac auacggagca 960

uguccccaaau augugaagca gaauacucua aaguuagcaa caggaaugcg gaauguaccu 1020

gagaaacaaa ccagaggucu auucggugca auagcagggu ucauagaaaa ugggugggaa 1080

ggaaugauag augguuggua uggcuucagg caccaaaacu ccgaagguac agggcaagca 1140

gcagaccuua aaagcacuca agcggccauu gaccagauca augggaaauu gaacagggug 1200

auugaaaaga cgaaugagaa auuccaucaa aucgaaaagg aauucucuga gguagaagga 1260

aggauucagg aucuugagaa auacguugaa gacacaaaga uagaucucug gucuuacaau 1320

gcagaacuuc uuguugcccu agagaaccag cauacaauug auuugacuga uucagagaug 1380

aacaaauugu uugaaaagac caggaggcaa cugagagaga augcugaaga caugggcaau 1440

gguugcuuca agauauacca caagugugac aaugcuugca uagaaucaau uagaaacggg 1500

acuuaugacc augacauaua ccgagaugag gcacugaaca accgguucca gaucaaaggu 1560

guugagcuaa aaucugggua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugucuu guugggguuc auuauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42191
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80951

<400> 42191
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ggaaacccug ugauaugcau gggacaucau gcuguggcca augggacuau gguaaagacc 120

cucacugaug aucaagugga aguggucacu gcacaagaac ugguggaauc acagaaccuc 180

ccggaacuau gcccgagucc ucuaagacua gucgauggcc agaccuguga uaucaucaau 240

ggagccuuag gaagcccagg augugaccau uugaauggug cugaauggga cauuuucaua 300

gaaaggccca augcaaugga cacuugcuau ccauuugaug ugccagauua ucagagccua 360

aggagcauac ucgccaacaa ugggaaauuc gaauucauug cugaagaauu ccaauggagc 420

accgugaagc aaaauggcaa auccggggcc ugcaagaggg caaaugugaa cgauuucuuu 480

aauagacuga auuggcucgu gaagucagac gggaaugcau acccucucca gaauuugaca 540

aaaguaaaca acggugauua ugcgaggcuu uacaucuggg gaguucacca cccuucgacg 600

gauaccgagc aaaccaaccu guauaagaac aauccuggua gggucacugu aucuaccaaa 660

accagucaaa caaguguggu gcccaacauu ggcagcaggc cuugggugag aggacaaagu 720

ggcagaauca gcuucuauug gacuauugua gagccuggag auuugauagu cuucaacaca 780

auaggaaauu uaauugcccc aagaggacau uacaaauuaa acagucagaa gaagagcaca 840

auucugaaca cugcaacucc cauaggcuca ugugucagua aaugucauac agacaaaggu 900

ucucucucua ccaccaagcc cuuucaaaau aucucaaggg uagcaauugg agauuguccc 960

aaauauguca aacaaggcuc ccuaaaacuu gcaacuggga ugagaaauau cccugagaag 1020

gcaucaagag ggcuuuuugg agcaauagcu ggauucauag agaauggaug gcaaggccug 1080

auugaugguu gguauggcuu cagacaucaa aaugcagaag gaacaggaac agcugcugau 1140

cuaaaaucca cucaggcagc caucgaucag aucaauggga aacucaaucg ucuuauugag 1200

aaaacaaacg agaaauacca ucaaaucgaa aaagaguucg aacaaguuga aggaagaauc 1260

caagaccugg agaaauaugu ugaagacaca aagauugauc uauggucaua uaaugcagag 1320

cuauuagucg cucuggaaaa ccagcauacu auagauguga cugacucgga gaugaacaag 1380

cucuuugaaa gaguaaggcg acaacucagg gagaaugcug aagacaaagg aaauggaugu 1440

uuugaaauau uccacaaaug ugacaacaac ugcauugaaa gcauucggaa ugggaccuau 1500

gaucaugaug uuuauagaaa ugaagcgauc aacaaucgau uccaaauaca gggugucaaa 1560

uugacccagg gauacaagga caucauccuu uggauuucgu ucuccauauc augcuuuuug 1620

cucguagcac ugcuuuuggc cuucauuuug ugggcuuguc agaacggaaa cauccggugc 1680

cagauuugca uuuga 1695

<210> 42192
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80953

<400> 42192
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42193
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80954

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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42194
<211> 1683
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AGQ80955

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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42195
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42196
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ80957

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ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42197
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42197

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ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42198
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80959

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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug uuuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaggacc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacua gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gucagucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggagacugc uaucauggug gagggacaau aauaaguaac 900

uugccauuuc aaaacauaga cagcagagca guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agaguccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagacucuau aacggaagug uggucauaca augcugagcu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42199
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ80961

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aucugucuug ggcaccaugc cgugucaaac gggacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaacg guugaacgaa caaauguucc caagaucugc 180

ucaaaaggaa aaaggacagu ugaccucggu caauguggac uucugggaac aauaacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aaacucugag gcaaauucuc 360

agggagucag gcggaauuga caaggagacg augggguuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uagaagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagauga cuaagucaua caaaaacgca 540

aggaaagacc cagcucugau aauaugggggg auccaccauu ccggaucaac cacagaacag 600

accaagcuau acgggagugg aaacaaauug auaacaguug ggaguucuaa uuaccaacag 660

uccuuuguac cgaguccggg agcgaggcca caagugaaug gccaaucugg aaggauugau 720

uuucauuggc ugaugcugaa ccccaaugau acaguuacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaug cuuucugaga gggaagucca ugggaauuca gaguggagua 840

cagguugaug ccaguuguga aggagauugc uaucauagug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcag 960

gagagucuga ugcuggcgac aggaaugaag aauguuccug aaaucccaaa gggaagaggc 1020

cuguuuggug cuauagcggg uuucauugaa aauggauggg aaggucugau ugacggaugg 1080

uauggcuuca ggcaucaaaa ugcacaaggg gagggaacug cugcagauua caagagcacc 1140

caaucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aacuaaccaa 1200

caauuugagu uaauagacaa ugaauucacu gagguugaaa agcaaauugg uaaugugaua 1260

aauuggacca gagauuccau gacagaagug uggucauaua acgcugaacu cuugguagca 1320

auggagaauc agcacacaau cgaucuggcc gacucagaaa ugaacaaacu auacgaacgg 1380

gugaagaggc aacugagaga gaaugcugaa gaagauggca cugguuguuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaca acacuuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua aagauugacc cggucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aacggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42200
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aucugucuug ggcaccaugc cgugucaaac gggacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaacg guugaacgaa caaauguucc caagaucugc 180

ucaaaaggaa aaaggacagu ugaccucggu caauguggac uucugggaac aauaacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aaacucugag gcaaauucuc 360

agggagucag gcggaauuga caaggagacg augggguuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uagaagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagauga cuaagucaua caaaaacgca 540

aggaaagacc cagcucugau aauaugggg auccaccauu ccggaucaac cacagaacag 600

accaagcuau acgggagugg aaacaaauug auaacaguug ggaguucuaa uuaccaacag 660

uccuuuguac cgaguccggg agcgaggcca caagugaaug gccaaucugg aaggauugau 720

uuucauuggc ugaugcugaa ccccaaugau acaguuacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaug cuuucugaga gggaagucca ugggaauuca gaguggagua 840

cagguugaug ccaguuguga aggagauugc uaucauagug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcag 960

gagagucuga ugcuggcgac aggaaugaag aauguuccug aaaucccaaa gggaagaggc 1020

cuguuuggug cuauagcggg uuucauugaa aauggauggg aaggucugau ugacggaugg 1080

uauggcuuca ggcaucaaaa ugcacaaggg gagggaacug cugcagauua caagagcacc 1140

caaucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aacuaaccaa 1200

caauuugagu uaauagacaa ugaauucacu gagguugaaa agcaaauugg uaaugugaua 1260

aauuggacca gagauuccau gacagaagug uggucauaua acgcugaacu cuugguagca 1320

auggagaauc agcacacaau cgaucuggcc gacucagaaa ugaacaaacu auacgaacgg 1380

gugaagaggc aacugagaga gaaugcugaa gaagauggca cugguuguuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaca acacuuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua aagauugacc cggucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aacggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42201
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaguggaag ucguuaaugc aacugaaaca guggaacgga caaacauccc caggaucugc 180

ucaaagggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca gggucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua uaaaaauaca 540

aggaaagacc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcugaa ucccaaugau acugucaccu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaauuca gaguggagua 840

cagguugaug ccgauuguga aggggauugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga uagcagggca guaggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca ggcaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaguucacu gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacgau ugaucuggcu gauucagaaa ugaauaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagugga 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42202
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80965

<400> 42202
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42203
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80966

<400> 42203
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42204
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80968

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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuugguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42205
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80970

<400> 42205
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaaaggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42206
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80971

<400> 42206
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaaagacagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu aucagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42207
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80974

<400> 42207
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggggc uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc guaaaugaag aagcucugag gcagauucuc 360

agagaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuuuauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaucggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

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cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42208
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ80977

<400> 42208

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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc guaaaugaag aagcucugag gcagauucuc 360

agagaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg guucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuuuauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaucggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aguggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42209
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80978

<400> 42209
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc guaaaugaag aagcucugag gcagauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaau uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggcauuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuuuauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaucggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42210
<211> 1683
<212> RNA
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ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucggccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auuacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua uaggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aagguuuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42211
<211> 1683
<212> RNA
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ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc guaaaugaag aagcucugag gcagauucuc 360

agggaaucag guggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaaacuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaaacag 960

gagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuuuauugaa aauggauggg aaggucuagu ugauggaugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaucggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaagug ugguccuaca augcugaacu cuuaguagca 1320

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cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42212
<211> 1683
<212> RNA
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ggaguggaag uugucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccuuggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaucaauu ccuagaauuu ucggccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuuaag acaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcgug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga ccaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacaa 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagccugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42213
<211> 1683
<212> RNA
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ggaguggaag uugucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccuuggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaucaauu ccuagaauuu ucggccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuuaag acaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcgug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga ccaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacaa 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagccugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

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gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42214
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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ggaguggaag uugucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccuuggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaucaauu ccuagaauuu ucggccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuuaag acaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcgug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga ccaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacaa 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagccugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42215
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42215

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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag uugucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccuuggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaucaauu ccuagaauuu ucggccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuuaag acaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcgug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga ccaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacaa 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagccugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42216
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ80985

<400> 42216
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ggaguggaag uugucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccuuggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaucaauu ccuagaauuu ucggccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuuaag acaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcgug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga ccaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacaa 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagccugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aagcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

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uaa 1683

<210> 42217
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42217
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ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42218
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42218
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ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucggccgacu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugccauuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aagguuuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42219
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
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ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcacacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42220
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42220
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag uugucaaugc aacugaaaca guggaacgaa caagcauccc caagaucugc 180

ucaaaaggga aaagggcagu ugaccuuggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaucaauu ccuagaauuu ucggccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuuaag acaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcgug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga ccaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggggg auucaccauu cuggaucaac uacagaacaa 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagccugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42221
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaaagacagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42222
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugccuug ggcaccaugc cgugucaaac gggacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guugaacgaa caaauguccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uucugggaac aauaacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc augaaugaag aagcucugag gcaaauucuc 360

agggagucag guggaauuga caaggagacg augggguuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uagaagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagauga cuaagucaua caaaaacaca 540

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accaagcuau acgggagugg aaacaaauug auaacaguug ggaguucuaa uuaccaacag 660

uccuuuguac cgaguccggg agcgaggcca caagugaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcugaa ccccaaugac acaguuacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaug cuuucuaaga gggaagucua ugggaauuca gaguggagua 840

cagguugaug ccaguuguga aggagauugc uaucauagug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca gugggaagu guccgaggua uguuaagcag 960

gagagucuga ugcuggcaac aggaaugaag aauguuccug aaaucccaaa gggaagaggc 1020

cuguuuggug cuauagcggg cuucauugaa aauggauggg aaggucugau ugacggaugg 1080

uauggcuuca ggcaucaaaa ugcacaaggg gagggaacug cugcagauua caagagcacc 1140

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caauuugagu uaauagacaa ugaauucacu gagguugaaa agcaaauugg caaugugaua 1260

aauuggacca gagauuccau gacagaagug uggucauaua acgcugaacu cuugguagca 1320

auggagaauc agcacacaau cgaucuggcc gacucagaaa ugaacaaacu auacgaacgg 1380

gugaagaggc aacugagaga gaaugcugaa gaagauggca cugguuguuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaca acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cggucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42223
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggguac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu ugauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuu guaaaugaag aagcuuugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguucccg agauuccaaa gggaagaggu 1020

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uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

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caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg uaauguaaua 1260

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42224
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaguggaag ucguuaaugc aacugaaacg guugaacgaa caaauguucc caagaucugc 180

ucaaaaggaa aaaggacagu ugaccucggu caauguggac uucugggaac aauaacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aaacucugag gcaaauucuc 360

agggagucag gcggaauuga caaggagacg augggguuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uagaagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagauga cuaagucaua caaaaacgca 540

aggaaagacc cagcucugau aauaugggg auccaccauu ccggaucaac cacagaacag 600

accaagcuau acgggagugg aaacaaauug auaacaguug ggaguucuaa uuaccaacag 660

uccuuuguac cgaguccggg agcgaggcca caagugaaug gccaaucugg aaggauugau 720

uuucauuggc ugaugcugaa ccccaaugau acaguuacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaug cuuucugaga gggaagucca ugggaauuca gaguggagua 840

cagguugaug ccaguuguga aggagauugc uaucauagug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcag 960

gagagucuga ugcuggcgac aggaaugaag aauguuccug aaaucccaaa gggaagaggc 1020

cuguuuggug cuauagcggg uuucauugaa aauggauggg aaggucugau ugacggaugg 1080

uauggcuuca ggcaucaaaa ugcacaaggg gagggaacug cugcagauua caagagcacc 1140

caaucagcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aacuaaccaa 1200

caauuugagu uaauagacaa ugaauucacu gagguugaaa agcaaauugg uaaugugaua 1260

aauuggacca gagauuccau gacagaagug uggucauaua acgcugaacu cuugguagca 1320

auggagaauc agcacacaau cgaucuggcc gacucagaaa ugaacaaacu auacgaacgg 1380

gugaagaggc aacugagaga gaaugcugaa gaagauggca cugguuguuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaca acacuuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua aagauugacc cggucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aacggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42225
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80995

<400> 42225
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aucugccuug gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgga caaacauccc caggaucugc 180

ucaaagggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca gggucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua uaaaaauaca 540

aggaaagacc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcugaa ucccaaugau acugucaccu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaauuca gaguggagua 840

cagguugaug ccgauuguga aggggauugc uaucauagug gagggacaau aauaagcaau 900

uugccauuuc agaacauaga uagcagggca guaggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca ggcaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaguucacu gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacgau ugaucuggcu gauucagaaa ugaauaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagugga 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42226
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ80996

<400> 42226

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ggaguggaag ucguuaaugc aacugaaaca guggaacgga caaacauccc caggaucugc 180

ucaaagggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca gggucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua uaaaaauaca 540

aggaaagacc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcugaa ucccaaugau acugucaccu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaauuca gaguggagua 840

cagguugaug ccgauuguga aggggauugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga uagcagggca guaggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca ggcaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaguucacu gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacgau ugaucuggcu gauucagaaa ugaauaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagugga 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42227
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ80997

<400> 42227
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaacg guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccugggaac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

gauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga gaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua caaaaacaca 540

aggaaagacc cagcucugau aauaugggg auccaccauu ccggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug gaaguucuaa uuaccaacag 660

ucuuuuguac cgagcccagg agcgagacca caaguuaaug gccaaucugg aagaauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucauagug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucuac ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa uucacaggga gagggaaccg cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacagggaaa uugaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaauucacu gagguugaaa agcaaauugg uaaugugaua 1260

aauuggacca gagacuccau gacagaagug ugguccuaca acgcugaacu cuugguagca 1320

auggagaacc agcacacaau ugaucuggcu gacucagaaa ugaauaaacu auacgaacga 1380

gugaagagac aacugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42228
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81000

<400> 42228
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaacg guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gaggaauugg caaagaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga gaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua caaaaauaca 540

aggaaagacc cagcucuaau aauaugggggg auccaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaaaag 660

ucuuuugugc cgagcccagg agcgagacca caaguuaaug gacaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugau acagucacuu ucagcuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug cuaauuguga aggggauugc uaucacaaug gaggaacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaaacaa 960

gagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggucuaau ugauggggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa agcaaauugg uaaugugaua 1260

aauuggacca gagacuccau gacagaagug ugguccuaca augcugaacu cuugguagca 1320

auggagaacc agcacacaau ugaucuggcu gacucagaaa ugaauaaacu auacgaacga 1380

gugaagagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42229
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81001

<400> 42229
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaacg guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua caaaaauaca 540

aggaaagacc cagcucuaau aauaugggg auccaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggacuucuaa uuaucaacag 660

ucuuuugugc cgagcccagg agcgagacca caaguuaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

cagguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagggca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggucuaau ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaauucacu gagauugaaa agcaaauugg uaaugugaua 1260

aauuggacca gagacuccau gacagaagug ugguccuaca augcugaacu cuugguagca 1320

auggagaacc agcacacaau ugaucuggcu gacucagaaa ugaauaaacu auacgaacga 1380

gugaagagac agcugagaga gaaugcugaa gaagauggca cugguuguuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaca acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugauc cagucaaacu uagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42230
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81002

<400> 42230
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcagauccuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg gauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggauccucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuu ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaacg gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

caaguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

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cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42231
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81003

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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcagauccuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg gauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggauccucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuu ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaacg gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

caaguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuagucgca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

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cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42232
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81004

<400> 42232
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcagauccuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg gauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggauccucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuu ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaacg gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

caaguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42233
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81005

<400> 42233

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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcagauccuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg gauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggauccucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuu ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaacg gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

caaguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42234
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81006

<400> 42234
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcagauccuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg gauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggauccucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuu ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa cuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaacg gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

caaguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42235
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81007

<400> 42235
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ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcagauccuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg gauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggauccucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuc ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaacg gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

caaguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42236
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81008

<400> 42236
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aucugccucg gacaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcgagaa 300

gggagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcagauccuc 360

agggaaucag gcggaauuga caaggaaaca augggauuca cauacagcgg gauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggauccucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagacaa ugcugcuuuu ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaacg gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca gaguggagua 840

caaguugaug ccaauuguga aggggauugc uaucauaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuagucgca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42237
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81009

<400> 42237
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aucugccucg ggcaucaugc ugugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagggcagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagcugauu uaauuauuga gaggcaagaa 300

gggagugaug ucuguuaucc ugggaaguuc gugaaugaag aagcucugag gcagauccuc 360

agggaaucag gcggaauuaa caaggaaaca augggauuca cauacagcgg gauaagaacu 420

aauggagcaa ccagugcaug uaggagauca gggguccucau ucuaugcaga aaugaaaugg 480

cuccugucaa auacagacaa ugcugcuuuu ccgcagacga cuaaaucaua caaaaauaca 540

aggaaagacc cagcuuuaau aauaugggg auucaccauu cuggaucaac uacagaacag 600

accaagcuau augggagugg aaacaaacug auaacaguug ggaguucuaa uuaucaacag 660

ucuuuugugc cgaguccagg agcgagacca caaguuaacg gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggccuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaauuca aaguggagua 840

caaguugaug ccaauuguga aggggauugc uaucacaaug gagggacaau aauaaguaau 900

uugcccuuuc agaacauaaa uagcagagca guagggaaau guccgagaua uguuaagcaa 960

gagagucugc ugcuagcaac aggaaugaag aauguuccug agauuccaaa gggaagaggu 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggucuagu ugaugggugg 1080

uaugguuuca ggcaucaaaa ugcacaggga gaggggacug cugcagauua caaaagcacu 1140

cagucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaguucacu gagguugaaa ggcaaauugg caauguaaua 1260

aauuggacca gagacuccau gacagaggug ugguccuaca augcugaacu cuuaguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaauaaacu auacgaacga 1380

gugaggagac agcugagaga gaaugcugaa gaagauggca ccgguugcuu ugaaauauuu 1440

cacaagugug augacgacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua caaauugauc cagucaaacu aagcaguggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42238
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81011

<400> 42238
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugccug uaggagauca gaaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca aaaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuuaauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42239
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81012

<400> 42239
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucaa caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcaggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42240
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81017

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

acaaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42241
<211> 1683
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<220>
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hemagglutinin__InfluenzaA__AGQ81018

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggaa aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucgu caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcuauaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagua gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

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<211> 1683
<212> RNA
<213> Artificial Sequence

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucgu caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcuauaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagua gagggacaau aauaaguaau 900

cugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42243
<211> 1683
<212> RNA
<213> Artificial Sequence

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42244
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ81021

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucgu caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcuauaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagua gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42245
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81022

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

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cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42246
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81023

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucgu caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcuauaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagua gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

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cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42247
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81025

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugggu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucgucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42248
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81026

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgacga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu uuagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccgac uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcagauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42249
<211> 1683
<212> RNA
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<220>
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42250
<211> 1683
<212> RNA
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgacga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu uuagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccgac uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcagauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaaaug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42251
<211> 1683
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AGQ81029

<400> 42251

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuuaugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42252
<211> 1683
<212> RNA
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucaa caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaaaug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu uuagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccuagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucagau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga ggcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42253
<211> 1683
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AGQ81032

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaucaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgacga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu uuagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccgac uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

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gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42254
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81033

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

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cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

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cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42255
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81034

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcga ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgacga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu uuagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugagg gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau gcccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gaaguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

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uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42256
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81035

<400> 42256
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aaccgaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42257
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81036

<400> 42257
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aaccgaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42258
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81037

<400> 42258
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aaccgaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42259
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81038

<400> 42259
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucgu caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcuauaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagua gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42260
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81039

<400> 42260
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggaa aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucgu caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcuauaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagua gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42261
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81040

<400> 42261
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gagacgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaggacc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagauugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga cagcagagca guaggaaaau guccgagaua uguuaagcaa 960

aagagccugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagacua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcagaucgg uaaugugaua 1260

aauuggacca gagacucuau aacggaagug uggucauaca augcugagcu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga aaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42262
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ81041

<400> 42262

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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gagacgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgcagacga cuaagucaua uaaaaauaca 540

agaaaggacc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga cagcagagca guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uauggcuuca gacaccagaa ugcacaggga gagggaacug cugcagacua caaaagcacc 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagacucuau aacggaagug uggucauaca augcugagcu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aagcaaugca aaauagaaua cagauugacc cagucaaauu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42263
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81042

<400> 42263
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuggggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gagacgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaauuga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaggacc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgagacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga cagcagagca guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uauggcuuca gacaccagaa ugcacaggga gagggaacug cugcagacua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagacucuau aacggaagug uggucauaca augcugagcu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aagcaaugca aaauagaaua cagauugacc cagucaaauu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42264
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81043

<400> 42264
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagaa augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggguggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42265
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81044

<400> 42265
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggguggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42266
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81045

<400> 42266
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggguggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42267
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81046

<400> 42267
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aaugggugggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42268
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81047

<400> 42268
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aaccgaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42269
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81049

<400> 42269

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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgacga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu uuagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau gcccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac aacugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42270
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81050

<400> 42270
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aaccgaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42271
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81051

<400> 42271
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucaa caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucagau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42272
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81052

<400> 42272
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aaccgaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42273
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81053

<400> 42273
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucaa caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaaaug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu uuagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucagau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacaggaagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42274
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81055

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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42275
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81056

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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42276
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81057

<400> 42276
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42277
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81058

<400> 42277
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42278
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81059

<400> 42278
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggguggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42279
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81060

<400> 42279
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggguggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42280
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ81061

<400> 42280

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggguggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42281
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42281
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aucugcauug gcuaccaauc aacaaacucc accgaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc caaagaauug cuucacacag aacacaaugg gaugcuaugu 180

gcaacaaauc ugggacgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugauau acugcuggga ggaagagaau gguccuauau ugucgaaaga 300

ccaucggcug uuaauggacu guguuacccc ggaaacguag aaaaccuaga agaauuaagg 360

ucacuuuuua gcucugcuag uucuuaccaa agaauccaga ucuuuccaga cacaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa ugcuuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaggaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cagaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc ugcaaggaag gauugacuau 720

uauugggcgg uguugagacc aggucagaca uugcgaauaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucuuucaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaacagug guaacugugu agugcaaugu caaacagaaa gagguggcuu gaauacuaca 900

uugccauucc acaacguaag caaguacgca uuuggaaauu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagagggcua 1020

uuuggagcca uagcugguuu cauagaagga gguuggucag gauugguugc ugguugguau 1080

ggguuccagc auucaaauga ucaaggaacu gguauggcug cagauagaga cucgacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag auugaaacua gacucaauau gaucaauaau 1260

aagauugaug aucaaauuca agacauaugg gcauauaacg cugaauugcu aguacugcuu 1320

gaaaaucaga aaacgcucga ugagcaugau gcaaauguaa acaaucugua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga gcuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

aaagaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uga 1683

<210> 42282
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81086

<400> 42282
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aucugcauug gcuaccaauc aacaaacucc accgaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc caaagaauug cuucacacag aacacaaugg gaugcuaugu 180

gcaacaaauc ugggacgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu acugcuggga ggaagagaau gguccuauau ugucgaaaga 300

ccaucggcug uuaauggacu guguuacccc ggaaacguag aaaaccuaga agaauuaagg 360

ucacuuuuua gcucugcuag uucuuaccaa agaauccaga ucuuuccaga cacaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa ugcuuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaggaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caaggacuga cacaacaaca agugugggcga cagaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc ugcaaggaag gauugacuau 720

uauugggcgg uguugagacc aggucagaca uugcgaauaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucuuucaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaacagug guaacugugu agugcaaugu caaacagaaa gagguggcuu gaauacuaca 900

uugccauucc acaacguaag caaguacgca uuuggaaauu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagagggcua 1020

uuuggagcca uagcugguuu cauagaagga gguuggucag gauugguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacu gguauggcug cagauagaga cucgacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag auugaaacua gacucaauau gaucaauaau 1260

aagauugaug aucaaauuca agacauaugg gcauauaacg cugaauugcu aguacugcuu 1320

gaaaaucaga aaacgcuuga ugagcaugau gcaaauguaa acaaucugua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga gcuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

aaagaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uga 1683

<210> 42283
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81087

<400> 42283
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aucugcaucg gcuaccaauc aacaaacucc acagaaacug uagacacauu aacagaaaac 120

aauguccccug ugacacaugc caaagaauug cuccacacag agcacaaugg gaugcugugu 180

gcaacaaacu ugggacaucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu acuguugggg ggaagagaau gguccuacau cguugagaga 300

ccaucggcug uuaauggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag uuccuaucaa aggauccaga uuuuuccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugaccc aaaagaacaa cgcuuacccu auucaagacg cccaauacac aaauaaucga 540

gaaaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaaca aguguggcaa cagaagaaau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaaugguu uacagggaag aauugauuau 720

uauuggucgg uauugaaacc aggucaaaca cugcgaauca gauccaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaguccu gaagacugau 840

cuaaaaaggg guagcuguac agugcaaugu cagacagaaa aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu guucgaaaua uguuggagug 960

aagagucuca aacuugcagu aggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcuggauu cauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaaugac auccaaagug aauaacauag ucgauaaaau gaacaaacaa 1200

uaugaaauua uuaaucauga auucagugag auugaaacua gacuuaacau gaucaauaau 1260

aagaucgaug aucaaauuca agacauaugg gcauauaacg cagaguugcu agugcugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcau uagguuccaa ugcaguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag gaggagguau 1500

caagaggaau caaaauugga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42284
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81092

<400> 42284
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aucugcauug gcuaccaauc aacaaacucc accgaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc caaagaauug cuucacacag aacacaaugg gaugcuaugu 180

gcaacaaauc ugggacgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu acugcuggga ggaagagaau gguccuauau ugucgaaaga 300

ccaucggcug uuaauggacu guguuacccc ggaaacguag aaaaccuaga agaauuaagg 360

ucacuuuuua gcucugcuag uucuuaccaa agaauccaga ucuuuccaga cacaaucugg 420

aaugugucuu acacuggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa ugcuuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaggaaca uucuuuucau gugggggcaua aaucacccac ccacugauac uacgcagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cagaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc ugcaaggaag gauugacuau 720

uauugggcgg uguugagacc aggucagaca uugcgaauaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucuuucaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaaaagug guaacugugu agugcaaugu caaacagaaa gagguggcuu gaauacuaca 900

uugccauucc acaacguaag caaauacgca uuuggaaauu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagagggcua 1020

uuuggagcca uagcugguuu cauagaagga gguuggucag gauugguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacu gguauggcug cagauagaga cucgacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag auugaaacua gacucaauau gaucaauaau 1260

aagauugaug aucaaauuca agacauaugg gcauauaacg cugaguugcu aguacugcuu 1320

gaaaaucaga aaacacucga ugagcaugau gcaaauguaa acaaucugua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga gcuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

aaagaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uga 1683

<210> 42285
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81095

<400> 42285
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aucugcauug gcuaccaauc aacaaacucc accgaaacug uaaacacgcu aaccgaagac 120

aauguuccug ugacacaugc caaagaauug cuucacacag aacacaaugg gaugcuaugu 180

gcaacaaauc ugggacgccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu acugcuggga ggaagagaau gguccuauau ugucgaaaga 300

ccaucugcug uuaauggacu guguuacccc ggaaacguag aaaaccuaga agaauuaagg 360

ucacuuuuua gcucugcuag uucuuaccaa agaauccaga ucuuuccaga cacaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacaa ugcuuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaggaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caaggacuga cacaacaaca agugugggcga cagaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc ugcaaggaag gauugacuau 720

uauugggcgg uguugaaacc aggucagaca uugcgaauaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucuuucaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaacagcg guaacugugu agugcaaugu caaucagaaa gagguggcuu gaauacuaca 900

uugccauucc acaacguaag caaguacgca uuuggaaauu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagagggcua 1020

uuuggagcca uagcugguuu cauagaagga gguuggucag gauugguugc uggcugguau 1080

gggguuccagc auucaaauga ucaggggacu gguauggcug cagauagaga cucgacgcaa 1140

aaggcaauug acaaaauaac auccaaagua aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag auugaaacua gacuuaauau gaucaauaau 1260

aagauugaug accaaauuca ggacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaga aaacgcucga ugagcaugau gcaaauguaa acaaccugua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga gcuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggaa ccuaugacag aagaaaguau 1500

aaagaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcaggcgcaa cauuuguaua 1680

uaa 1683

<210> 42286
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81099

<400> 42286
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auuugcaucg gcuaccaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccg uuacacaugc caaagaauug cuccacacag agcacaaugg gaugcugugu 180

gcuacaaauu ugggacaucc ucuuauucua gacaccugua ccauugaagg acuaaucuac 240

ggcaauccuu cuugugaucu acuguuggga ggaagagaau gguccuacau cgucgagaga 300

ccaucggcug uaaauggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuaa uucuuaucaa aggauccaga ucuuuccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu ccuucuauag aagcaugaga 480

ugguugaccc aaaagaacaa cgcuuacccc acucaagaug cccaauacac aaauaaucga 540

gagaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaaca aguguggcaa cagaagaaau aaauaggacc 660

uucaaaccau ugauaggacc gaggccucuu gucaaugguu ugcagggaag aauugauuau 720

uauuggucgg uauugaaacc aggucaaaca uugcgaauaa gauccaaugg gaaccuaaua 780

gcuccauggu auggacacau ucuuucagga gagagucacg gaagaauccu gaagaccgau 840

cuaaaaaggg guagcuguac gguacaaugu cagacagaaa aagguggauu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucgaaaua uguuggagua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucaag uagaggacua 1020

uucggagcca uagcuggauu cauagaagga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaguaac auccaaagug aauaacauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag guugaaacua gacuuaacau gaucaacaau 1260

aagauugaug aucaaauuca agacauaugg gcauauaacg cagaauugcu ugugcugcuu 1320

gaaaaccaga agacacucga ugagcaugau gcaaauguaa auaaucuaua uaauaaagua 1380

aagagggcau uggguuccaa ugcaguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag gaggaaguau 1500

caagaggaau caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggcuaugucc aauggaucuu gcaggcgcaa cauuuguaua 1680

uaa 1683

<210> 42287
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81100

<400> 42287

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aucugcaucg gcuaccaauc aacaaacucc acagaaacug uagacacauu aacagaaaac 120

aauguccccug ugacacaugc caaagaauug cuccacacag agcacaaugg gaugcugugu 180

gcaacaaacu ugggacaucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu acuguuggga ggaagagaau gguccuacau cguugagaga 300

ccaucggcug uuaauggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugccag uuccuaucaa aggauccaga uuuuuccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

uggcugaccc aaaagaacaa cgcuuacccu auucaagacg cccaauacac aaauaaucga 540

gaaaagaaca uucuuuucau gugggcaua aaucacccac ccaccgauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaaca aguguggcaa cagaagaaau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaaugguu uacagggaag aauugauuau 720

uauuggucgg uauugaaacc aggucaaaca cugcgaauca gauccaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

cuaaaaaggg guagcuguac agugcaaugu cagacagaga aagguggauu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu guucgaaaua uguuggagug 960

aagagucuca aacuugcagu aggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcuggauu cauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgauaaaau gaacaaacaa 1200

uaugaaauua uugaucauga auucagugag guugaaacua gacuuaacau gaucaauaau 1260

aagaucgaug aucaaauuca agacauaugg gcauauaacg cagaguugcu agugcugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcau uagguuccaa ugcaguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaguguau ggagacaauu cggaacggga ccuacaacag gaggagguau 1500

caagaggaau caaaauugga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccuuaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcaggcgcaa cauuuguaua 1680

uaa 1683

<210> 42288
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42288
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aucugcauug gcuaccaauc aacaaacucc accgaaacug uaaacacgcu aaccgaagac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag aacacaaugg gaugcucugu 180

gcaacaaauc ugggacgccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu acugcuggga ggaagagaau gguccuauau ugucgaaaga 300

ccaucggcug uuaauggacu guguuacccc ggaaacguag aaaaccuaga agaauuaagg 360

ucacuuuuua gcucugcuag cucuuaccaa agaauccaga ucuuuccaga cacaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacgc aaaagaacaa ugcuuacccu guucaagacg cccaauacac aaauaauaaa 540

ggaaggaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cagaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaacgguc uacaaggaag gauugacuau 720

uauugggcag uguugaaacc aggucagaca uugcgaauaa gauccaacgg aaaccuaauc 780

gcuccauggu augggcacau ucuuuuaggg gagagucaug gaagaauccu gaaaacggau 840

uuaaacagug gugacugugu agugcaaugu caaucagaaa gagguggcuu gaauacuaca 900

uugccauuuc acaacguaag caaguacgca uuuggaaauu gcccaaaaua uguuggagua 960

aagagucuca aauuggcagu cggucugagg aauguaccug cuagaucaac uagagggcua 1020

uuuggagcca uagcugguuu cauagaagga gguuggucag gauugguugc uggcugguau 1080

gggguuccagc auucaaauga ucagggaacu gguauggcug cagauagaga cucgacgcaa 1140

aaggcaauug acaaaauaac auccaaagua aauaauauag ucgauaaaau gaacaaacag 1200

uaugaaauua uugaucauga auucagcgag auugaaacua gacuuaauau gaucaauaau 1260

aagauugacg aucaaauuca ggacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaga aaacgcucga ugagcaugau gcaaauguaa acaaucugua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga guuauaccau 1440

aaaugcgaua accaguguau ggagacaauu cgaaacggga ccuaugacag aagaaaguau 1500

aaagaggaau caagacuaga gagacagaaa auagaggggg uuaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uga 1683

<210> 42289
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81124

<400> 42289
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucauacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauacua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccuaga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaucaa agaauccaga ucuuuccaga uucaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aaacaugagg 480

ugguugacuc aaaaggacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu augggcacau ucucuuaggg gagagucaug gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacguaag caaguacgca uuuggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc gguauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa agacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

cagaaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42290
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81125

<400> 42290
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucauacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauacua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccuaga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaucaa agaauccaga ucuuuccaga uucaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaaggacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu augggcacau ucucuuaggg gugagucaug gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacguaag caaguacgca uuuggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc gguauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa agacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42291
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81126

<400> 42291
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aucugcaucg gucaccaguc aacaaacucc acagaaacug uggacacgcu aacagaaacc 120

aauguuccug ugacacaugc caaagaauug cuccaaacag agcacaaugg aaugcugugu 180

gcgacaaauc uggggcaucc ccucauucua gacacaugca cuaucgaagg acuaaucuau 240

ggcaaccccu cuugugaccu gcuauuggag ggaagagaau gguccuacau agucgaaaga 300

cccucagcug uaaacggaac uuguuacccu gggaauguag aaaaccuaga ggaacucagg 360

acacuuuuua guuccgccag uuccuaccaa agaauccaaa ucuucccaga cacaauaugg 420

aauguuacuu acacuggaac aagcagauca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaaaagcgg guuuuacccu guccaagacg ccaaauacac aaauaacagg 540

gggaagaaca uccucuucgu gugggguaua caucacccac acaccuauac cgaccaaaca 600

acuuuguaca uaagaaacga cacaacaaca agugugacaa cagaggaguu gaauagaauc 660

uucaaaccag ugauagugcc aaggcuucuu gucaaugguc agcaggggag aauugauuau 720

uauuggucag uacuaaaacc aggccaaaca uugcgaguaa gauccaaugg gaaucuaauu 780

gcuccauggu auggacacgu ucuuucagga gggagccaug gaagaauccu gaagacugau 840

uuaaaaggug guaauugugu agugcaaugu cagacugaaa agggguggauu caacaguaca 900

uugcccuucc acaauaucag caaauaugca uuuggaaccu gccccaaaua uguaaaaguc 960

aauagucuca aacuggcaau uggucugagg aaugugccug cuagaucaaa uagaggacua 1020

uuuggggcua ucgcugguuu cauagaagga gguuggccag gacuaguagc uggcugguau 1080

gguuuccagc auucaaauga ucaagggguu gguauggccg cagauaggga uucaacucaa 1140

aaggcaguug auaaaauaac aucuaaggug aauaauauag ucgacaagau gaauaagcaa 1200

uaugaaauaa uugaucauga auucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauaca agacauaugg gcauauaaug cagaacugcu aguacuacuu 1320

gaaaaccaga aaacgcucga ugagcaugau gcgaacguaa acaaucuaua uaacaaggug 1380

aagagggccc ugggcuccaa ugcuauggaa gaugggaaag guuguuucga guuauaccau 1440

aagugugaug aucaaugcau ggaaacaauu cgaaacggga ccuauaauag gagaaaguau 1500

agagaggaau caagauuaga acagcagaga auagaagggg uuaaacugga aucugaggga 1560

acuuacaaaa uccucacuau uuauucgacu gucgccucau cucuugugcu ugcgaugggg 1620

uuugcugccu uccuguucug ggccaugucc aaugguucuu gcaggugcaa cauuuguaua 1680

uaa 1683

<210> 42292
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81127

<400> 42292
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacacu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccuaga agaauuaagg 360

ucacuuuuua guucugcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcacagacu 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacguaag caaguacgca uuuggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc gguauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauuguu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuuuga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42293
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81128

<400> 42293
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc gaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg auuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccugga ggaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuauccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggguaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagacau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugauauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaaucca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguugu ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42294
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81130

<400> 42294
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aucugcaucg gcuaccaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaauug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggacgagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

gaaaagaaca uucuuuucau gugggcaua aaucacccac ccaccgauac ugugcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaaugguu ugcagggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa gaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu aaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaaa aaggcggcuu aaacacaaca 900

uugccauucc aaaacguaag uaaguacgca uuuggaaacu gcucuaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc uggcugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua uugaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucagaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaaa aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcau uggguuucaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cgaaacggga ccuacaacag gaggaaguau 1500

caagaggaau caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaga uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42295
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81132

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aucugcaucg gucaccaguc aacaaacucc acagaaacug uggacacgcu aacagaaacc 120

aauguuccug ugacacaugc caaagaauug cuccaaacag agcacaaugg aaugcugugu 180

gcgacaaauc uggggcaucc ccucauucua gacacaugca cuaucgaagg acuaaucuau 240

ggcaaccccu cuugugaccu gcuauuggag ggaagagaau gguccuacau agucgaaaga 300

cccucagcug uaaacggaac uuguuacccu gggaauguag aaaaccuaga ggaacucagg 360

acacuuuuua guuccgccag uuccuaccaa agaauccaaa ucuucccaga cacaauaugg 420

aauguuacuu acacuggaac aagcagauca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaaaagcgg guuuuacccu guccaagacg ccaaauacac aaauaacagg 540

gggaagaaca uccucuucgu gugggguaua caucacccac acaccuauac cgaccaaaca 600

acuuuguaca uaagaaacga cacaacaaca agugugacaa cagaggaguu gaauagaauc 660

uucaaaccag ugauagugcc aaggcuucuu gucaaugguc agcaggggag aauugauuau 720

uauuggucag uacuaaaacc aggccaaaca uugcgaguaa gauccaaugg gaaucuaauu 780

gcuccauggu auggacacgu ucuuucagga gggagccaug gaagaauccu gaagacugac 840

uuaaaaggug guaauugugu agugcaaugu caaacugaaa aggguggauu caacaguaca 900

uugcccuucc acaauaucag caaauaugca uuuggaaccu gccccaaaua uguaaaaguc 960

aauagucuca aacuggcaau uggucugagg aaugugccug cuagaucaaa uagaggacua 1020

uuuggggcua ucgcugguuu cauagaagga gguuggccag gacuaguagc uggcugguau 1080

gguuuccagc auucaaauga ucaagggguu gguauggccg cagauaggga uucaacucaa 1140

aaggcaguug auaaaauaac aucuaaggug aauaauauag ucgacaagau gaauaggcaa 1200

uaugaaauaa uugaucauga auucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauaca agacauaugg gcauauaaug cagaacugcu aguacuacuu 1320

gaaaaccaga aaacgcucga ugagcaugau gcgaacguaa acaaucuaua uaacaaggug 1380

aagagggccc ugggcuccaa ugcuauggaa gaugggaaag guuguuucga guuauaccau 1440

aagugugaug aucaaugcau ggaaacaauu cgaaacggga ccuauaaaug gagaaaguau 1500

agagaggaau caagauuaga acagcagaga auagaagggg uuaaacugga aucugaggga 1560

acuuacaaaa uccucacuau uuauucgacu gucgccucau cucuugugcu ugcgaugggg 1620

uuugcugccu uccuguucug ggccaugucc aaugguucuu gcaggugcaa cauuuguaua 1680

uaa 1683

<210> 42296
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugcaucg gucaccaguc aacaaacucc acagaaacug uggacacgcu aacagaaacc 120

aauguuccug ugacacaugc caaagaauug cuccaaacag agcacaaugg aaugcugugu 180

gcgacaaauc uggggcaucc ccucauucua gacacaugca cuauugaagg gcuaaucuau 240

ggcaaccccu cuugugaccu gcuauuggag ggaagagaau gguccuacau agucgaaaga 300

cccucagcug uaaacggaac uuguuacccu gggaauguag aaaaccuaga ggaacucagg 360

acacuuuuua gcuccgccag uuccuaccaa agaauccaaa ucuucccaga cacaauaugg 420

aauguuacuu acacuggaac aagcagauca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaaaagcgg guuuuacccu guccaagacg ccaaauacac aaauaacagg 540

gggaagaaca uccucuucgu gugggguaua caucacccac auaccuauac cgaccaaaca 600

acuuuguaca uaagaaacga cacaacaaca agugugacaa cagaggaguu gaauagaauc 660

uucaaaccag ugauagugcc aaggcuucuu gucaaugguc agcaggggag aauugauuau 720

uauuggucag uacuaaaacc aggccaaaca uugcgaguaa gauccaaugg gaaucuaauu 780

gcuccauggu auggacacau ucuuucagga gggagccaug gaagaauccu gaagacugau 840

uuaaaaagug guaauugugu agugcaaugu cagacugaaa aggguggauu caacaguaca 900

uugcccuucc acaauaucag caaauaugca uuuggaaccu gccccaaaua uguaaaaguc 960

aauagucuca aacuggcaau uggucugagg aaugugccug cuagaucaaa uagaggacua 1020

uuuggggcua ucgcugguuu cauagaagga gguuggccag gacuaguagc uggcugguau 1080

gguuuccagc auucaaauga ucaagggguu gguauggccg cagauaggga uucaacucaa 1140

aaggcaguug auaaaauaac aucuaaggug aauaauauag ucgacaagau gaauaagcaa 1200

uaugaaauaa uugaucauga auucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauaca agacauaugg gcauauaaug cagaacugcu aguacuacuu 1320

gaaaaccaga aaacgcucga ugagcaugau gcgaacguaa acaaucuaua uaacaaggug 1380

aagagggccc ugggcuccaa ugcuauggaa gauggaaaag guuguuucga guuauaccau 1440

aagugugaug aucaaugcau ggaaacaauu cgaaacggga ccuauaauag gagaaaguau 1500

agagaggaau caagauuaga acagcagaga auagaagggg uuaaacugga aucugaggga 1560

acuuacaaaa uccucacuau uuauucgacu gucgccucau cucuugugcu ugcgaugggg 1620

uuugcugccu uccuguucug ggccaugucc aaugguucuu gcaggugcaa cauuuguaua 1680

uaa 1683

<210> 42297
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugcaucg gucaccaguc aacaaacucc acagaaacug uggacacgcu aacagaaacc 120

aauguuccug ugacacaugc caaagaauug cuccaaacag agcacaaugg aaugcugugu 180

gcgacaaauc uggggcaucc ccucauucua gacacaugca cuauugaagg gcuaaucuau 240

ggcaaccccu cuugugaccu gcuauuggag ggaagagaau gguccuacau agucgaaaga 300

cccucagcug caaacggaac cuguuacccu gggaauguag aaaacccaga ggaacucagg 360

acacuuuuua gcuccgccag uuccuaccaa agaauccaaa ucuucccaga cacaauaugg 420

aauguuacuu acacuggaac aagcagauca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaaaagcgg guuuuacccu guccaagacg ccaaauacac aaauaacagg 540

gggaagaaca uccucuucgu gugggguaua caucacccac acaccuauac cgaccaaaca 600

acuuuguaca uaagaaacga cacaacaaca agugugacaa cagaggaguu gaauagaauc 660

uucaaaccag ugauagugcc aaggcuucuu gucaaugguc agcaggggag aauugauuau 720

uauuggucag uacuaaaacc aggccaaaca uugcgaguaa gauccaaugg gaaucuaauu 780

gcuccauggu auggacacgu ucuuucagga gggagccaug gaagaauccu gaagacugau 840

uuaaaaagug guaauugugu agugcaaugu cagacugaaa agggguggauu caacaguaca 900

uugcccuucc acaauaucag caaauaugca uuuggaaccu gccccaaaua uguaaaaguc 960

aauagucuca aacuggcaau uggucugagg aaugugccug cuagaucaaa uagaggacua 1020

uuuggggcua ucgcugguuu cauagaagga gguuggccag gacuaguagc uggcugguau 1080

gguuuccagc auucaaauga ucaagggguu gguauggccg cagauaggga uucaacucaa 1140

aaggcaguug auaaaauaac aucuaaggug aauaauauag ucgacaagau gaauaagcaa 1200

uaugaaauaa uugaucauga auucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauaca agacauaugg gcauauaaug cagaacugcu aguacuacuu 1320

gaaaaccaga aaacgcucga ugagcaugau gcgaacguaa acaaucuaua uaacaaggug 1380

aagagggccc ugggcuccaa ugcuauggaa gaugggaaag guuguuucga guuauaccau 1440

aagugugaug aucaaugcau ggaaacaauu cgaaacggga ccuauaauag gagaaaguau 1500

agagaggaau caagauuaga acagcagaga auagaagggg uuaaacugga aucugaggga 1560

acuuacaaaa uccucacuau uuauucgacu gucgccucau cucuugugcu ugcgaugggg 1620

uuugcugccu uccuguucug ggccaugucc aaugguucuu gcaggugcaa cauuuguaua 1680

uaa 1683

<210> 42298
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ81135

<400> 42298

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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuccacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccuaga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauaa ugcacagaca 600

aaucuauaca caaggacuga cacaacaaca aguguggcga cggaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaaaagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacguaag caaguacuca uuuggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc gguauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucaacgag auugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugugaua accagugcau ggagacaauu cgaaacggga ccuauaacag gagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42299
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugcaucg gucaccaguc aacaaacucc acagaaacug uggacacgcu aacagaaacc 120

aauguuccug ugacacaugc caaagaauug cuccaaacag agcacaaugg aaugcugugu 180

gcgacaaauc uggggcaucc ccucauuuua gacacaugca cuaucgaagg acuaaucuau 240

ggcaaccccu cuugugaccu gcuauuggag ggaagagaau gguccuacau agucgaaaga 300

cccucagcug uaaacggaac uuguuacccu gggaauguag aaaaccuaga ggaacucagg 360

acacuuuuua guuccgccag uuccuaccaa agaauccaaa ucuucccaga cacaauaugg 420

aauguuacuu acacuggaac aagcagauca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaaaagcgg guuuuacccu guccaagacg ccaaauacac aaauaacagg 540

gggaagaaca uccucuucgu gugggguaua caucacccac acaccuauac cgaccaaaca 600

acuuuguaca uaagaaacga cacaacaaca agugugacaa cagaggaguu gaauagaauc 660

uucaaaccag ugauagugcc aaggcuucuu gucaaugguc agcaggggag aauugauuau 720

uauuggucag ugcuaaaacc aggccaaaca uugcgaguaa gauccaaugg gaaucuaauu 780

gcuccauggu auggacacgu ucuuucagga gggagccaug gaagaauccu gaagacugac 840

uuaaaaggug guaauugugu agugcaaugu caaacugaaa agggguggauu caacaguaca 900

uugcccuucc acaauaucag caaauaugca uuuggaaccu gccccaaaua uguaaaaguc 960

aauagucuca aacuggcaau uggucugagg aaugugccug cuagaucaaa uagaggacua 1020

uuuggggcua ucgcugguuu cauagaagga gguuggccag gacuaguagc uggcugguau 1080

gguuuccagc auucaaauga ucaaggguu gguauggccg cagauaggga uucaacucaa 1140

aaggcaguug auaaaauaac aucuaaggug aauaauauag ucgacaagau gaauaggcaa 1200

uaugaaauaa uugaucauga guucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauaca agacauaugg acauauaaug cagaacugcu aguacuacuu 1320

gaaaaccaga aaacgcucga ugagcaugau gcgaacguaa acaaucuaua uaacaaggug 1380

aagagggccc ugggcuccaa ugcuauggaa gaugggaaag guuguuucga guuauaccau 1440

aagugugaug aucaaugcau ggaaacaauu cgaaacggga ccuauaauag gagaaaguau 1500

agagaggaau caagauuaga acagcagaga auagaagggg uuaaacugga aucugaggga 1560

acuuacaaaa uccucacuau uuauucgacu gucgccucau cucuugugcu ugcgaugggg 1620

uuugcugccu uccuguucug ggccaugucc aaugguucuu gcaggugcaa cauuuguaua 1680

uaa 1683

<210> 42300
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aucugcaucg gucaccaguc aacaaacucc acagaaacug uggacacgcu aacagaaacc 120

aauguuccug ugacacaugc caaagaauug cuccaaacag agcacaaugg aaugcugugu 180

gcgacaaauc uggggcaucc ccucauuuua gacacaugca cuaucgaagg acuaaucuau 240

ggcaaccccu cuugugaccu gcuauuggag ggaagagaau gguccuacau agucgaaaga 300

cccucagcug uaaacggaac uuguuacccu gggaauguag aaaaccuaga ggaacucagg 360

acacuuuuua guuccgccag uuccuaccaa agaauccaaa ucuucccaga cacaauaugg 420

aauguuacuu acacuggaac aagcagauca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaaaagcgg guuuuacccu guccaagacg ccaaauacac aaauaacagg 540

gggaagaaca uccucuucgu gugggguaua caucacccac acaccuauac cgaccaaaca 600

acuuuguaca uaagaaacga cacaacaaca agugugacaa cagaggaguu gaauagaauc 660

uucaaaccag ugauagugcc aaggcuucuu gucaaugguc agcaggggag aauugauuau 720

uauuggucag ugcuaaaacc aggccaaaca uugcgaguaa gauccaaugg gaaucuaauu 780

gcuccauggu auggacacgu ucuuucagga gggagccaug gaagaauccu gaagacugac 840

uuaaaaggug guaauugugu agugcaaugu caaacugaaa aggguggauu caacaguaca 900

uugcccuucc acaauaucag caaauaugca uuuggaaccu gcccuaaaua uguaaaaguc 960

aauagucuca aacuggcgau uggucugagg aaugugccug cuagaucaaa uagaggacua 1020

uuuggggcua ucgcugguuu cauagaagga gguuggccag gacuaguagc uggcugguau 1080

gguuuccagc auucaaauga ucaagggguu gguauggccg cagauaggga uucaacucaa 1140

aaggcaguug auaaaauaac aucuaaggug aauaauauag ucgacaagau gaauaggcaa 1200

uaugaaauaa uugaucauga auucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauaca agacauaugg gcauauaaug cagaacugcu aguacuacuu 1320

gaaaaccaga aaacgcucga ugagcaugau gcgaacguaa acaaucuaua uaacaaggug 1380

aagagggccc ugggcuccaa ugcuauggaa gaugggaaag guuguuucga guuauaccau 1440

aagugugaug aucaaugcau ggaaacaauu cgaaacggga ccuauaauag gagaaaguau 1500

agagaggaau caagauuaga acagcagaga auagaagggg uuaaacugga aucugaggga 1560

acuuacaaaa uccucacuau uuauucgacu gucgccucau cucuugugcu ugcgaugggg 1620

uuugcugccu uccuguucug ggccaugucc aaugguucuu gcaggugcaa cauuuguaua 1680

uaa 1683

<210> 42301
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aacguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg auuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa ggaagagaau gguccuacau ugucgaaaga 300

ccaucagcug uuaauggagu gugcuaccca ggacacguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaguccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguuaacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagacau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugcaug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

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aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag gagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42302
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aucugcauug gcuaucaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuccacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ucaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccuaga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggcaua aaucacccac ccacugauaa ugcacagaca 600

aaucuauaca caaggacuga cacaacaaca aguguggcga cggaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaaaagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacguaag caaguacuca uuuggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

ggguuccagc auucaaauga ucaaggaacc gguauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

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aaaugugaua accagugcau ggagacaauu cgaaacggga ccuauaacag gagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42303
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc gaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacagacc uggggcgucc ucuuauucua gacaccugua ccauugaagg auuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau uguugaaaga 300

ccaucggcug uuaauggagu gugcuacccu ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuauccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggguaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca agugugggcga cggaagacau aaauagaacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucacg uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggacag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugauauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaaucca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagggggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42304
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aauguuccug ugacacaugc uaaagaauug cuccacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccuaga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauaa ugcacagaca 600

aaucuauaca caaggacuga cacaacaaca aguguggcga cggaagauau aaauagaacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaaaagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacguaag caaguacuca uuuggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc gguauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucugua uaacaaagug 1380

aagagagcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugugaua accagugcau ggagacaauu cgaaacggga ccuauaacag gagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42305
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42305

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aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accacuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acgguggaac aagcaaagca uguucagauu cauucuacag gagcaugagg 480

ugguugacuc aaaagaacaa caauuauccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagacau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg ugcuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaauugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aauaugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaaucac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga guucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cggaacggga ccuauaauag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42306
<211> 1683
<212> RNA
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<220>
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aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucug gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggaaagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggaau gugcuacccc ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uuccuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaaaaaca uucuuuucau gugggggcaua aaucacccac ccacugacac ugcacagaca 600

aaucuguaca caaggacuga cacaaaaaca aguguggcga cggaagaaau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaauugugu agugcaaugu caaacagaaa gagguggcuu gaacacuaca 900

cugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aauguaccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucagggaacc ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcguauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac ucaaauguaa acaaucuaua uaacaaagua 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42307
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucug gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggaaagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggaau gugcuacccc ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uuccuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugacac uguacagaca 600

aaucuguaca caaggacuga cacaaaaaca aguguggcga cggaagaaau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaauugugu agugcaaugu caaacagaaa gagguggcuu gaacacuaca 900

cugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aauguaccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucagggaacc ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagua 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42308
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucuguauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucug gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggaaagaau gguccuacau ugucgaaaga 300

ccaucggcug uuaauggaau gugcuacccc ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uuccuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugacac ugcacagaca 600

aaucuguaca caaggacuga cacaaaaaca aguguggcga cggaagaaau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca uugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucuauuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaauugugu agugcaaugu caaacagaaa gagguggcuu gaacacuaca 900

cugcccuuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aauguaccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucagggaacc ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagua 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42309
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag ggcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcua uuaauggagu gugcuacccc gggaauguag aaaaccugga agaauugagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagacau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uacugggcgg uguuaaaacc aggucagaca uugagaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucuccuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaaugugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccaac auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacgcaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaaguu 1380

aagagggcac uugguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguac 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aaugguucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42310
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc gaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacagacc uggggcgucc ucuuauucua gacaccugua ccauugaagg auuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau uguugaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuauccu guucaagacg cccaauacac aaaugauaga 540

ggaaauaaca uucuuuucau gugggguaua aaucacccac ccacugauac uguacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagacau aaauagaacc 660

uucaaaccau ugauagggcc aaggccucuu gucaaugguc uacaaggaag gauugauuau 720

uauugggcgg uguuaaaacc aggucagaca cugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ucucuuaggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

ggguuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugauauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaaucca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagacuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42311
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81152

<400> 42311
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagacu gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa aaaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuuuau gugggcaua aaucacccac ccacugauac uguacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagacau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu guuaaugguc uacaaggaag gauugauuau 720

uauugggcag uguuaaaacc aggucagaca uugcgaguga gauccaacgg gaaccuaauu 780

gcuccauggu auggacacau ucucuuggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggggua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu uauagaggga gguuggucag gauuaguugc ugguugguau 1080

ggauuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucag 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauuacu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagauuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42312
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42312
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagacu gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa aaaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acgguggaau aagcaaagca uguucaaauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuuuau gugggggcaua aaucacccac ccacuaauac uacacagaca 600

gaucuguaca caaggacuga cacaacaaca agugugggcga cggaagacau acauaggacc 660

uucaaaccau ugauagggcc aaggccucuu guuaaugguc uacaaggaag gauugauuau 720

uauugggcag uguuaaaacc aggucagaca uugcgaguga gauccaacgg gaaccuaauu 780

gcuccauggu auggacacau ucucuugggg aagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggggua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu uauagaggga gguuggucag gauuaguugc ugguugguau 1080

ggauuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucag 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauuacu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagauuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42313
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81155

<400> 42313
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaacug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu accgcuggaa gggagagacu gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag agaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa aaaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaauggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuuuau gugggggcaua aaucacccac ccacugauac uacacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcga cggaagacau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu guuaaugguc uacaaggaag gauugauuau 720

uauugggcag uguuaaaacc aggucagaca uugcgaguga gauccaacgg gaaccuaauu 780

gcuccauggu auggacacau ucucuuggggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggagauu gcccaaaaua uauuggggua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu uauagaggga gguuggucag gauuaguugc ugguugguau 1080

ggauuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucag 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauuacu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagauuaga gagacaggaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42314
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81156

<400> 42314
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagacu gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccugga ggaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa aaaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acgguggaau aagcaaagca uguucaaauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuuuau gugggcaua aaucacccac ccacuaauac uacacagaca 600

gaucuguaca caaggacuga cacaacaaca aguguggcga cggaagacau acauaggacc 660

uucaaaccau ugauagggcc aaggccucuu guuaaugguc uacaaggaag gauugauuau 720

uauugggcag uguuaaagcc aggucagaca uugcgaguga gauccaacgg gaaccuaauu 780

gcuccauggu auggacacau ucucuugggg gagagucacg gaagaauccu gaaaacggau 840

uugaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggggua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu uauagaggga gguuggucag gauuaguugc ugguugguau 1080

ggauuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucag 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauuacu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuacaacag aagaaaguau 1500

caggaggaau caagauuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42315
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81157

<400> 42315
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaacug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu accgcuggaa gggagagacu gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaaugugg agaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa aaaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaauggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguugacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuuuau gugggggcaua aaucacccac ccacugauac uacacagaca 600

aaucuguaca caaggacuga cacaacaaca agugugggcga cggaagacau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu guuaaugguc uacaaggaag gauugauuau 720

uauugggcag uguuaaaacc aggucagaca uugcgaguga gauccaacgg gaaccuaauu 780

gcuccauggu auggacacau ucucuugggg gagagucacg gaagaauccu gaaaacggau 840

uuaaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguaugca uucggagauu gcccaaaaua uauuggggua 960

aagagucuca aauuggcagu cggucuaagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu uauagaggga gguuggucag gauuaguugc ugguugguau 1080

ggauuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucag 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauuacu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagauuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42316
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ81158

<400> 42316

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auaugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagaau gguccuacau ugucgaaaga 300

ccaucggcug uaaauggagu gugcuaccca ggaaauguag aaaaccuaga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa agaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acaguggaac aagcaaagca uguucagauu cauucuacag aagcaugagg 480

ugguuaacuc aaaagaacaa caauuacccu guucaagacg cccaauacac aaauaauaga 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca agcguagcga cggaagauau aaauaggacc 660

uucaaaccau ugauagggcc aaggccucuu guuaaugguc uacaaggaag gauugauuau 720

uauugggcgg uuuuaaaacc aggucagaca cugcgaguaa gauccaacgg gaaucuaauc 780

gcuccauggu auggacacau ccuuuuaggg gagagccacg gaagaauccu gaaaacggau 840

uuaaagagug guagcugugu agugcaaugc caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uuuggaaauu gcccaaaaua uauuggagua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggauua 1020

uuuggagcca uagcugguuu cauagaggga gguuggucag gauuaguugc ugguugguau 1080

gggguuccagc auucaaauga ucaaggaacu ggaauggcug cagauagaga cucaacucaa 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uuaaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauugcu aguacugcuu 1320

gaaaaucaaa aaacccucga ugagcaugac gcaaauguga acaaucuuua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuauaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaauguau 1500

caggaggaau caagacuaga gaggcagaaa auagaagggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42317
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81159

<400> 42317
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aucugcauug gcuaccaauc aacaaacucc acagaaacug uagacacgcu aaccgaaaac 120

aauguuccug ugacacaugc uaaagaauug cuucacacag agcacaaugg gaugcuaugu 180

gcaacaaacc uggggcgucc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaacccuu cuugugaucu accgcuggaa gggagagacu gguccuacau ugucgaaaga 300

ccaucggcug uuaauggagu gugcuacccc ggaaauguag aaaaccugga agaauuaagg 360

ucacuuuuua guuccgcuag uucuuaccaa aaaauccaga ucuuuccaga uucaaucugg 420

aauguaucuu acgauggaau aagcaaagca uguucaaauu cauucuacag aagcaugagg 480

ugguugacua aaaagaacaa caguuacccu guucaagacg cccaauacac aaauaauaua 540

ggaaagaaca uucuuuuuau gugggggcaua aaucacccac ccacuaauac uacacagaca 600

gaucuguaca caaggacuga cacaacaaca aguguggcaa cggaagacau acauaggacc 660

uucaaaccau ugauagggcc aaggccuccu guuaaugguc uacuaggaag gauugauuau 720

uauugggcag uguuaaagcc aggucagaca uugcgaguga gauccaacgg gaaccuaauu 780

gcuccauggu acggacacau ucucuuggggg gagagucacg gaagaauccu gaaaacggau 840

uugaagagug guaacugugu agugcaaugu caaacagaaa gaggugguuu gaacacuaca 900

uugccauuuc acaacgugag caaguacgca uucggaaauu gcccaaaaua uauuggggua 960

aagagucuca aauuggcagu cggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcugguuu uauagaggga gguuggucag gauuaguugc ugguugguau 1080

ggauuccagc auucaaauga ucaaggaacc ggaauggcug cagauagaga cucaacucag 1140

aaggcaauug acaaaauaac guccaaagua aauaauauag ucgacaaaau gaacaaacag 1200

uaugaaauua uugaccauga auucagcgag auugaaacua gacucaauau gaucaaugau 1260

aagauugaug accaaauuca agacauaugg gcauauaaug cugaauuacu aguacugcuu 1320

gaaaaucaaa aaacucucga ugagcaugac gcaaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaguggaa gaugggaaag gaugcuucga ucuguaccau 1440

aaaugcgaua accagugcau ggagacaauu cgaaacggga ccuauaacag aagaaaguau 1500

caggaggaau caagauuaga gagacagaaa auagaggggg ucaaacugga aucugaagga 1560

accuacaaaa uccucaccau uuauucgacu gucgccucau cucuuguuau ugcaaugggg 1620

uucgcugccu ucuuguucug ggccaugucu aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42318
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81161

<400> 42318
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucc auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagccg uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcaaagca ugcucagguu cauucuacag aaacaugaga 480

ugguugacuc aaaagaacag cgauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcau uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aaggcagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42319
<211> 1683
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag cgauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagagg 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc aggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua caucggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaagaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

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<212> RNA
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag cgauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42321
<211> 1683
<212> RNA
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cguugagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaauuugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag caauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca uugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcgg cagauagaga cucaacccaa 1140

aaggcaauag auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguga acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag guuguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaaguugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42322
<211> 1683
<212> RNA
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aauguccccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaagggcaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga agggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaaggaguu gguauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua caauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42323
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42323

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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

gaaaagaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugugcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga agggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaaggaguu gguauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua caauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42324
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aauguccccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga aggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaaggaguu gguauggcug cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua caauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42325
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aauguccccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga aggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaaggaguu gggauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42326
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aauguccccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga agggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaaggaguu gguauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42327
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggaaaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cguugagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga aggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cgaaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uucucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

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<211> 1683
<212> RNA
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aauguaccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga aggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucgaauga ccaaggaguu gguauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

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uaa 1683

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<212> RNA
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaacgg cgauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42330
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaacgg cgauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

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<211> 1683
<212> RNA
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa gggagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag caauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgacac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc aggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

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uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

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<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

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ccaucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag caauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggcaua aaucacccac ccaccgacac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc aggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42333
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag cgauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42334
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ81185

<400> 42334

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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaccugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag caauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ccuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaagaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaauau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaua accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42335
<211> 1683
<212> RNA
<213> Artificial Sequence

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<400> 42335
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag cgauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc aggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

cuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcaau uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaagaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42336
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42336
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga aggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaaggaguu gguauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua caauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42337
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81191

<400> 42337
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga agggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaaggaguu gggauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42338
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaacgg cgauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42339
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acacugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacgg cgauuacccu auccaagacg cccaauacac aaacaaucaa 540

gggaagaaca uucuuuucau gugggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacgu ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguccugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42340
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc cagagaacug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg acuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcagugu cagacagaga agggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaug 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaaggaguu gguauggcgg cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42341
<211> 1686
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81195

<400> 42341

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gaagagguga ccaaugcuac ugaaacagug gaggguaaaa gccuaaacag auuauguaug 180

aaaggaagaa aucauaaaga ccugggcaac ugccauccaa uaggaaugcu aauagggaca 240

ccagcuugug aucugcaucu uacaggaaca ugggacacuc ucauugaacg agagaaugcu 300

auugcuuacu gcuacccugg agcuacuaua aaugaggaag cacugaggca gaaaauaaug 360

gagaguggag gaaucagcaa aauaagcacu ggauucacuu auggaucuuc cauaaauucg 420

gccggaacca cuagagcaug caugaggaau ggagggaaca gcuuuuaugc agagcuuaag 480

uggcuaguau caaagagcaa aggacaaaac uucccucaga ccacgaacac uuacagaaac 540

acagacacau cugaacaccu cauaaugugg ggaauucauc aucccucuag cacccaagag 600

aagaaugauc uauaugggac acaaucacug uccauaucgg ucgggaguuc cacuuaucag 660

aacaauuuug uuccgguugu uggagcaaga ccucagguca auggacaaag uggcagaauc 720

gauuuucacu ggacacuagu acaaccaggu gauaauauca cuuucucaca caauggggu 780

cugauagcac cgagccgagu uagcaaauug auuggaagag gauuggggau ucagucagac 840

gcaucaauag acaauaauug ugaguccaaa uguuuuugga gagggguuc uauaaauaca 900

aggcuucccu uucaaaaucu gucaccaaga acaguggguc aauguccuaa auaugugaac 960

aaaaggagcu ugaugcuggc aacaggaaug agaaacgugc cagaaauaau gcaagggaga 1020

ggucuauuug gugcaauagc gggguuuaua gagaaugggu gggaaggaau gguagauggc 1080

ugguaugguu ucagacacca aaaugcucag ggcacaggcc aagccgcuga uuacaagagu 1140

acucaggcag cuauugacca aaucacugga aaacugaaua gacuuauuga aaaaaccaau 1200

acugaguucg agucaauaga aucugaguuc agugagauug aacaucagau cgguaacguc 1260

aucaauugga cuaaggauuc aauaaccgac aucuggacuu aucaggcuga gcuauuggua 1320

gcaauggaga accagcauac aaucgauaug gcugauucag agauguugaa ucuauaugaa 1380

agagugagga aacaacucag gcagaaugca gaagaagacg ggaaaggaug uuuugaaaua 1440

uaucaugcuu gugaugacuc augcauggag agcauaagaa acaacaccua ugaccauuca 1500

caguacagag aagaagcucu uuugaacaga cugaauauca acccagugac acucucuucu 1560

ggcuauaaag acaucauccu cugguuuagc uucggggcau cauguuuugu ucuucuagcc 1620

guugucaugg gucuugucuu uuucugccug aagaauggaa acaugcgaug cacaaucugu 1680

auuuag 1686

<210> 42342
<211> 1686
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ81196

<400> 42342
auguacaaaa uaguaguaau aaucgcgcuc cuuggagcug ugaaaggucu ugacaaaauc 60

ugccuaggac aucaugcggu ggccaauggg accaucguaa agacucucac aaacgaacag 120

gaggaaguga ccaaugcuac ugaaacagug gagagugcaa gccuaaacag guuauguaug 180

aaaggaagaa gccauaaaga ccugggcaac ugccauccaa uaggaauguu gauaggaaca 240

ccagcuugug aucugcaucu uacagggaca ugggacacuc ucauugaacg agagaaugcu 300

auugcuuacu gcuacccugg agcaaccgua aaugaagaag cacugaggca gaaaauaaug 360

gagaugggg gaaucagcaa aauuagcacu ggcuucacuu augggucuuc cauaaauucg 420

gccggaacca cuaaagcaug caugaggaau agagggaaua gcuuuuacgc agagcucaag 480

uggcugguau caaagagcaa aggacaaaac uuccccccaga ccacgaacac uuacagaaac 540

acggauacgg cugaacaucu cauaaugugg ggaauucauc acccuucuag cacucaagag 600

aagaaugauc uauaugggac acaaucauug uccauaucgg uugggaguuc cacuuaccag 660

aacaauuuug uuccgguugu uggggcaagg ccccaaguca auggacaaag cggaagaauc 720

gauuuucacu ggacacuagu acagccaggu gauaauauca ccuucucaca caauggggu 780

cugauagcac cgagucgagu uaguaaauug guuggaagag gauuggggau ucaaucagac 840

gcaccaauag acaauaauug ugagucuaaa uguuuuugga gaggggguuc uauaaauaca 900

agacucccuu uccaaaauuu gucaccaaga acagugggcc aauguccuaa auacgugaac 960

aaaaggagcu ugaugcuugc aacaggaaug agaaaugugc cagaaauaau gcaagggaga 1020

ggucuauuug gugcaauagc gggauuuaua gagaauggau gggaaggaau gguagauggu 1080

ugguacgguu ucagacacca aaacgcucag ggcacaggcc aagccgccga cuacaagagu 1140

acucagacag ccauugacca gaucacugga aaacugaaua gacuuauuga gaaaaccaac 1200

acugaguuug aaucaauaga aucugaauuc agugagaucg aacaccaaau cgggaacguc 1260

aucaauugga cuaaggauuc aauaacugac aucuggacuu aucaggcuga gcuauuggua 1320

gcaauggaga accagcacac aaucgauaug gcugacucag agauguuaaa ucuauaugag 1380

agagugagga aacaacucag gcagaaugcu gaagaggacg gaaaaggaug uuuugagaua 1440

uaucaugcuu gugaugacuc augcauggag agcauaagaa acaacaccua ugaucauuca 1500

caauacagag aagaggcucu uuugaacaga cugaauauca auccagugaa acucucuucc 1560

ggcuauaaag acaucauccu uugguuuagc uucggggcau cauguuuugu ucuucuagcc 1620

guugucaugg gucuuguuuu cuucugucug aagaauggaa acaugcgaug cacaaucugu 1680

auuuag 1686

<210> 42343
<211> 1686
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81198

<400> 42343
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ugccugggac aucaugcagu ggccaauggg accaucguaa agacccucac aaaugaacag 120

gaagagguga ccaaugcuac ugaaacagug gagaguacaa gccuaaacag auuauguaug 180

aaaggaagaa accauaaaga ccugggcaac ugccauccaa uaggaaugcu aauagggaca 240

ccagcuugug aucugcaucu uacagggacg ugggacacuc ucauugaacg agagaaugcu 300

auugcuuacu gcuacccugg agcuacuaua aaugaagaag cacugaggca gaaaauaaug 360

gagaguggag gaaucagcaa aauaagcacu ggauucacuu auggaucuuc cauaaauucg 420

gcuggaaaca cuaaagcaug caugaggaau ggagggaaua gcuuuuaugc agagcuuagg 480

uggcugguau caaagaacaa aggacaaaac uucccucaga ccacgaacac uuacagaaac 540

acagacacgg cugaacaccu cauaauaugg ggaauucauc aucccucuag cacuaaagag 600

aagaaugauc uauaugggac acaaucacug uccauaucgg ucgggaguuc cacuuaccag 660

aacaauuuug uuccgguugu uggagcaaga ccucagguca auggacaaag uggcagaauc 720

gauuuucacu ggacacuugu acagccaggu gauaauauca ccuucucaca caaugggggu 780

cugauagcac cgagccgagu uagcaaauug auuggaagag gauuggggau ucaaucagac 840

gcaccaauag acaauaauug ugaguccaaa uguuuuugga gagggggguuc uauaaauaca 900

aggcuucccu uucaaaauuu gucaccaaga acaguggguc aauguccuaa auaugugaac 960

aaaaagagcu ugaugcuugc aacaggaaug agaaacgugc cagaaauaau gcaagggaga 1020

ggucuauuug gugcaauagc gggguuuaua gagaaugggu gggaaggaau gguagauggc 1080

ugguaugguu ucagacacca aaaugcucag ggcacaggcc aagccgcuga uuacaagagu 1140

acucaggcag cuauugacca aaucacugga aaacugaaua gacuuauuga aaaaaccaau 1200

acugaguucg agucaauaga aucugaguuc agugagaucg aacaccagau cgguaacguc 1260

aucaauugga cuaaggauuc aauaaccgac aucuggacuu aucaggcuga gcuauuggua 1320

gcaauggaga accagcauac aaucgauaug gcugauucag agauguugaa ucuauaugaa 1380

agagugagga aacaacucag gcagaaugca gaagaagacg ggaaaggaug uuuugaaaua 1440

uaucaugcuu gugaugacuc augcauggag agcauaagaa acaacaccua ugaccauuca 1500

caguacagag aagaagcucu uuugaacaga cugaauauca acccagugac acucucuucu 1560

ggcuauaaag acaucauccu cugguuuagc uucggggcau cauguuuugu ucuucuagcc 1620

guugucaugg gucuugucuu cuucugucug aagaauggaa acaugcgaug cacaaucugu 1680

auuuag 1686

<210> 42344
<211> 1686
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81199

<400> 42344
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ugccuaggac aucaugcggu ggccaauggg accaucguaa agacucucac aaacgaacag 120

gaggaaguga ccaaugcuac ugaaacagug gagagugcaa gccuaaacag guuauguaug 180

aaaggaagaa gccauaaaga ccugggcaac ugccauccaa uaggaauguu gauaggaaca 240

ccagcuugug aucugcaucu uacagggaca ugggacacuc ucauugaacg agagaaugcu 300

auugcuuacu gcuacccugg agcaaccgua aaugaagaag cacugaggca gaaaauaaug 360

gagaguggg gaaucagcaa aauuagcacu ggcuucacuu augggucuuc cauaaauucg 420

gccggaacca cuaaagcaug caugaggaau ggagggaaua gcuuuuacgc agagcucaag 480

uggcugguau caaagagcaa aggacaaaac uuccccccaga ccacgaacac uuacagaaac 540

acggauacgg cugaacaucu cauaaugugg ggaauucauc acccuucuag cacucaagag 600

aagaaugauc uauaugggac acaaucauug uccauaucgg uugggaguuc cacuuaccag 660

aacaauuuug uuccgguugu uggggcaagg ccccaaguca auggacaaag cggaagaauc 720

gauuuucacu ggacacuagu acagccaggu gauaauauca ccuucucaca caauggggu 780

cugauagcac cgagucgagu uaguaaauug guuggaagag gauuggggau ucaaucagac 840

gcaccaauag acaauaauug ugagucuaaa uguuuuugga gagggguuc uauaaauaca 900

agacucccuu uccaaaauuu gucaccaaga acagugggcc aauguccuaa auacgugaac 960

aaaaggagcu ugaugcuugc aacaggaaug agaaaugugc cagaaauaau gcaagggaga 1020

ggucuauuug gugcaauagc gggauuuaua gagaauggau gggaaggaau gguagauggu 1080

ugguacgguu ucagacacca aaacgcucag ggcacaggcc aagccgccga cuacaagagu 1140

acucagacag ccauugacca gaucacugga aaacugaaua gacuuauuga gaaaaccaac 1200

acugaguuug aaucaauaga aucugaauuc agugagaucg aacaccaaau cgggaacguc 1260

aucaauugga cuaaggauuc aauaacugac aucuggacuu aucaggcuga gcuauuggua 1320

gcaauggaga accagcacac aaucgauaug gcugacucag agauguuaaa ucuauaugag 1380

agagugagga aacaacucag gcagaaugcu gaagaggacg gaaaaggaug uuuugagaua 1440

uaucaugcuu gugaugacuc augcauggag agcauaagaa acaacaccua ugaucauuca 1500

caauacagag aagaggcucu uuugaacaga cugaauauca auccagugaa acucucuucc 1560

ggcuauaaag acaucauccu uugguuuagc uucggggcau cauguuuugu ucuucuagcc 1620

guugucaugg gucuuguuuu cuucugucug aagaauggaa acaugcgaug cacaaucugu 1680

auuuag 1686

<210> 42345
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81200

<400> 42345
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aucggcuauu uaagcaacaa cucaacggac aagguugaca caauaaucga gaacaauguc 120

acgguaacua gcucagugga acuagucgaa acagaacaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauagg ccuuggagau ugcuccuucg cuggguggau auuggggaau 240

cccaugugug augaccuaau ugguaagacu ucauggucuu acaucgugga gaagcccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuagagaaug aagaggaacu gagauugaaa 360

uucaguggag uccuggaauu cagcaaauuc gaagcauuca caucaaccgg augggugcu 420

guaaauucag gagcaggagu gacugcugca uguaaguuug ggagcuccaa uuccuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaauaaa gaggaccuuc 540

aacaacacca aaggaagaga uguguugguu guuuggggaa uucaccaccc ugccacacug 600

aaagagcauc aggaccuaua uaagaaagac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

aggaugacau uuuauuggac aauagucaaa ccaggggagu caauaacauu ugaaucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gaaauugucu cuguuggaaa ugggaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacgga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cauagaaaca cuaucggaga cuguccccaaa 960

uaugugaaug ucaaaucuuu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagagggu uauuuggagc aauagccggg uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acggguuuca acacagaaau gaagaaggaa cagguauagc agcagacaag 1140

gagucaacuc agaaggcaau agaccagaua acguccaaag uaaauaauau cgucgacaag 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caauugucga aacauguaga ugacucugua guugacaucu ggucauauaa ugcacaacuc 1320

cucguuuugc uugaaaauga gaagacccug gaccuccacg auuccaaugu cagaaaucuc 1380

caugagaagg uuaggaggau gcuaaaggac aaugccaaag augaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaacgaaugc auugaaaggg uuagaaacgg gacauacgau 1500

cacaaagaau ucgaggaaga aucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacuccagug ggaauguaua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cacucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuaa 1698

<210> 42346
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81202

<400> 42346
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aucggcuauu uaagcaacaa cucaacagac aagguugaca caauaaucga gaacaauguc 120

acggugacua gcucagugga acuagucgaa acagaacaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauaag ucuuggagau ugcuccuucg cuggguggau auuggggaau 240

cccaugugug augaccuaau ugguaagacu ucauggucuu acaucgugga gaagcccaac 300

ccagcaaacg ggaucuguua cccaggaaca uuggagaaug aagaggaacu gagauugaaa 360

uucaguggag uccuggaauu cagcaaauuc gaagcauuca caucaaacgg augggugcu 420

guaaauucag gggcaggagu gacugcugca uguaaguuug ggagcuccaa uuccuucuuc 480

cgaaacacgg uauggcugau acaccaauca ggaacauacc cuguaauaaa gaggaccuuc 540

aacaacacca aaggaagaga uguguugguu guuuggggag uucaccaccc ugccacacug 600

aaagagcauc aggaccuaua caagaaagac agcuccuaug uagcaguggg uucggaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

aggaugacau uuuauuggac aauagucaaa ccaggggaau caauaacauu ugaaucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gagauugucu cuguuggaaa ugggaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacgga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cauagaaaca cuaucggaga cuguccccaaa 960

uaugugaaug ucaaaucuuu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguuuggagc aauagccggg uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acggguuuca acacaggaau gaagaaggaa caggaauagc agcagacaag 1140

gagucaacuc agaaggcaau agaccagaua acguccaaag uaaacaauau cgucgacaga 1200

augaauacaa auuucgaauc ugugcaacac gaguccagug aaauagagga gaggauaaac 1260

caauugucga aacauguaga ugauucuaug guugacaucu ggucauauaa ugcacaacuc 1320

cuuguuuugc uugaaaauga gaagacccug gaucuccaug auuccaaugu cagaaaucuc 1380

caugagaagg uuaggaggau gcuaaaggac aaugccaaag augaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaacaaaugc aucgaaaggg uuagaaacgg gacauaugau 1500

cacaaagaau ucgaggaaga aucuaaaauc aaucgucagg agaucgaggg aguaaaauua 1560

gacuccagug ggaauguaua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cacucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42347
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81203

<400> 42347
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aucggauacu uaagcaacaa cucaacagac aaaguugaca caauaaucga gaacaauguc 120

acgguaacua gcucagugga acuagucgaa acagaacaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuucg cuggguggau auuggggaau 240

ccaaugugug augaccuaau ugguaagacu ucauggucuu acaucgugga gaaacccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggag uccuggaauu caacaaauuc gaagcauuca caucaaacgg augggugcu 420

guaaauucag gagcaggagu gacugcugca uguaaguuug ggagcuccaa uucuuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaauaaa gaggaccuuc 540

aacaacacca aaggaagaga uguguugguu guuuggggaa uucaccaccc ugccacacug 600

aaagagcauc aggaccuaua caagaaggac agcuccuaug uagcaguggg uucagaaacu 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugacau uuuauuggac aauagucaaa ccaggggagu caauaacauu ugaaucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gagauugucu cuguuggaaa ugggaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaagu gucaaacaga aauaggagga 900

aucaauacaa acaagagcuu ucacaguguu cauagaaaca cuaucggaga cugucccaaa 960

uaugugaaug ucaaaucuuu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguuuggagc aauagccggg uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acgggguuuca acacaggaau gaagaaggaa cagguauagc agcagacaag 1140

gagucaacuc agaaggcgau agaccaaaua acguccaaag uaaauaauau cgucgacagg 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caauugucga aacauguaga ugauucugug guugacauuu ggucauauaa ugcacaacuc 1320

cucguucugc uugaaaauga aaagacccug gaccuccacg auuccaaugu cagaaaucuc 1380

caugagaagg uuaggaggau gcuaaaggac aaugccaaag augaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaacgaaugc aucgaaaggg uuaggaacgg gacauacgau 1500

cacaaagaau ucgaggaaga gucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacuccagug ggaauguaua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cacucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42348
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81204

<400> 42348
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aucggauacu uaagcaacaa cucaacagac aaaguugaca caauaaucga gaacaauguc 120

acgguaacua gcucagugga acuagucgaa acagaacaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuucg cuggguggau auuggggaau 240

cccaugugug augaccuaau ugguaagacu ucauggucuu acaucgugga gaaacccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggag uccuggaauu caacaaauuc gaagcauuca caucaaacgg augggugcu 420

guaaauucag gagcaggagu gacugcugca uguaaguuug ggagcuccaa uucuuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaauaaa gaggaccuuc 540

aacaacacca aagggagaga uguguugguu guuuggggaa uucaccaccc ugccacacug 600

aaagagcauc aggaccuaua caagaaggac agcuccuaug uagcaguggg uucagaaacu 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugacau uuuauuggac aauagucaaa ccaggggagu caauaacauu ugaaucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gagauugucu cuguuggaaa ugggaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaagu gucaaacaga aauaggagga 900

aucaauacaa acaagagcuu ucacaguguu cauagaaaca cuaucggaga cuguccccaaa 960

uaugugaaug ucaaaucuuu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguuuggagc aauagccggg uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acgggguuuca acacaggaau gaagaaggaa cagguauagc agcagacaag 1140

gagucaacuc agaaggcgau agaccaaaua acguccaaag uaaauaauau cgucgacagg 1200

augaauacaa auuucggguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caauugucga aacauguaga ugauucugug guugacauuu ggucauauaa ugcacaacuc 1320

cucguucugc uugaaaauga aaagacccug gaccuccacg auuccaaugu cagaaaucuc 1380

caugagaagg uuaggaggau gcuaaaggac aaugccaaag augaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaacgaaugc aucgaaaggg uuaggaacgg gacauacgau 1500

cacaaagaau ucgaggaaga gucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacuccagug ggaauguaua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cacucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42349
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81205

<400> 42349
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aucggauacu uaagcaacaa cucaacagac aaaguugaca caauaaucga gaacaauguc 120

acgguaacua gcucagugga acuagucgaa acagaacaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuucg cuggguggau auuggggaau 240

ccaaugugug augaccuaau ugguaagacu ucauggucuu acaucgugga gaaacccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggag uccuggaauu caacaaauuc gaagcauuca caucaaacgg augggugcu 420

guaaauucag gagcaggagu gacugcuaca uguaaauuug ggagcuccaa uucuuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaauaaa gaggaccuuc 540

aacaacacca aaggaagaga uguguugguu guuuggggaa uucaccaccc ugccacacug 600

aaagagcauc aggaccuaua caagaaggac agcuccuaug uagcaguggg uucagaaacu 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugacau uuuauuggac aauagucaaa ccaggggagu caauaacauu ugaaucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gagauugucu cuguuggaaa ugggaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaagu gucaaacaga aauaggagga 900

aucaauacaa acaagagcuu ucacaguguu cauagaaaca cuaucggaga cuguccccaaa 960

uaugugaaug ucaaaucuuu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguuuggagc aauagccggg uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acggguuuca acacaggaau gaagaaggaa cagguauagc agcagacaag 1140

gagucaacuc agaaggcgau agaccaaaua acguccaaag uaaauaauau cgucgacagg 1200

augaauacaa auuucgaguc ugugcaauac gaauucagug aaauagagga gaggauaaac 1260

caauugucga aacauguaga ugauucugug guugacauuu ggucauauaa ugcacaacuc 1320

cucguucugc uugaaaauga aaagacccug gaccuccacg auuccaaugu cagaaaucuc 1380

caugagaagg uuaggaggau gcuaaaggac aaugccaaag augaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaacgaaugc aucgaaaggg uuaggaacgg gacauacgau 1500

cacaaagaau ucgaggaaga gucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacuccagug ggaauguaua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cacucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42350
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81206

<400> 42350
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aucggcuauu uaagcaacaa uucaacagac aaagucgaca caauaaucga gaacaauguc 120

acgguaacua gcucagugga acuagucgag acagaacaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcucuuucg cuggguggau auuggggaau 240

cccaugugug augaccuaau ugguaagacu ucauggucuu acaucgugga gaaacccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagaucgaaa 360

uucaguggag uccuggaauu cagcaaauuc gaagcauuca caucaaacgg augggugcu 420

guaaauucag gagcaggagu gacugcugca uguaaguuug ggagcuccaa uuccuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauauc cuguaauaaa gaggaccuuc 540

aacaacacca aaggaagaga uguguugguu guuuggggaa uucaccaccc ugccacacug 600

aaagagcauc aggaccuaua caagaaggac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugacau uuuauuggac aauagucaaa ccagaggagu caauaacauu ugaaucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gagauugucu cuguuggaaa ugggaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacgga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cauagaaaca cuaucggaga cugucccaaa 960

uaugugaaug ucaaaucguu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguucggagc aauagccggg uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acggguuuca acacaggaau gaagaaggaa cagguauagc agcagacaag 1140

gagucaacuc agaaggcaau agaccagaua acguccaaag uaaauaauau cgucgacagg 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caauugucga aacauguaga ugauucugug guugacaucu ggucauauaa ugcacaacuc 1320

cucguuuugc uugaaaauga gaagacccug gaccuccaug auuccaaugu cagaaaucuc 1380

caugagaagg uuaggagaau gcuaaaggac aaugccaaag augaggggaa cgggguguuc 1440

accuuuuacc auaaguguga uaaugaaugc aucgaaaggg uuaggaacgg gacauacgau 1500

cacaaagaau ucgaggaaga aucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacuccagug ggaaugucua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

auauuggcag cacucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42351
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81209

<400> 42351
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aucggcuauu uaagcaacaa cucaacagac aaaguugaca caauaauuga gaacaauguc 120

acuguaacua gcucagugga acuaguugaa acagaacaca cuggguucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuuug cuggguggau auugggaaau 240

cccaugugug augaccuaau ugguaagacu ucaugguccu acauugugga gaagcccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggaa uccuggaauu cagcaaauuc gaagcauuca caucaaacgg augggugcu 420

gugaauucag gagcaggagu gaccgcugca ugcaaguuug ggagcuccaa uucauucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaauaaa gagaaccuuc 540

aacaacacca aaggaagaga uguguugauu guuuggggaa uucaccaccc ugccacacug 600

aaagagcacc aggaccuaua caagaaggac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugacau uuuauuggac aauagucaaa ccaggggagu caauaacauu ugagucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gagauugucu ccguuggggaa uggaaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacaga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cacagaaaca cuaucggaga cuguccccaaa 960

uaugugaaug ucaaaucucu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguuuggagc aauagccgga uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acggguuuca acauaggaau gaagaaggaa caggcauagc agcagacaag 1140

gagucaacuc agaaggcaau agaccagaua acguccaaag uaaauaauau cgucgacaga 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caguugucga aacauguaga ugauucugug gucgacaucu ggucauauaa ugcacaacuu 1320

cucguuuugc uugaaaauga gaagacccug gaccuccacg auuccaaugu cagaaaucuc 1380

caugagaagg uuagaaggau gcuaaaagac aaugccaaag acgaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaaugaaugc aucgaaaggg uuagaaacgg aacauaugau 1500

cacaaggaau ucgaagaaga aucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacucuagug ggaaugugua uagaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cgcucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42352
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGQ81211

<400> 42352

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aucggcuauu uaagcaacaa cucaacagac aaaguugaca caauaauuga gaacaauguc 120

acuguaacua gcucagugga acuagucgaa acagaacaca cugggucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuuug cuggguggau auugggaaau 240

cccaugugug augaccuaau ugguaagacu ucaugguccu acauugugga gaagcccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggag uccuggaauu cagcaaauuc gaagcauuca caucaaacgg augggugcu 420

gugaauucag gagcaggagu gaccgcugca ugcaaguuug ggagcuccaa uucauucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaauaaa gagaaccuuc 540

aacaacacca aaggaagaga uguguugauu guuuggggaa uucaccaccc ugccacacug 600

aaagagcacc aggaccuaua caagaaggac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugacau uuuauuggac aauagucaaa ccaggggagu caauaacauu ugagucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gagauugucu ccguugggaa uggaaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacaga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cacagaaaca cuaucggaga cuguccccaaa 960

uaugugaaug ucaaaucucu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguuuggagc aauagccgga uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acggguuuca acauaggaau gaagaaggaa caggcauagc agcagacaag 1140

gagucaacuc agaaggcaau agaccagaua acguccaaag uaaauaauau cgucgacaga 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caguugucga aacauguaga ugauucugug gucgacaucu ggucauauaa ugcacaacuu 1320

cucguuuugc uugaaaauga gaagacccug gaccuccacg auuucaaugu cagaaaucuc 1380

caugagaagg uuagaaggau gcuaaaagac aaugccaaag acgaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaaugaaugc aucgaaaggg uuagaaacgg aacauaugau 1500

cacaaggaau ucgaagaaga aucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacucuagug ggaaugugua uagaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cgcucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42353
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81213

<400> 42353
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aucggcuauu uaaguaacaa cucaacagac aaaguugaca caauaauuga gaacaauguc 120

accguaacua gcucagugga acuagucgaa acagaacaca cugggucauu cuguucaauu 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuuug cuggguggau auugggaaau 240

cccaugugug auggccuaau ugguaagacu ucauggucuu acauugugga aaagcccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguagag uccuggaauu cagcaaauuc gaagcauuca caucaaaugg augggugcu 420

gugaauucag gagcaggagu gacugcugca ugcaaguuug ggagcuccaa uuccuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaauaaa gaggaccuuc 540

aacaacacca aaggaagaga uguguugguu guuuggggaa uucaucaccc ugccacacug 600

aaagagcacc aggaucuaua caagaaggac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca caguuaaugg gcaggcugga 720

cggaugaccu uuuauuggac aauagucaaa ccaggagaau caauaacauu ugagucuaau 780

ggugcauucc uagcucccag auaugcuuuu gagauugucu ccguugggaa uggaaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacgga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cacagaaaca cuaucggaga cugucccaaa 960

uaugugaaug ucaaaucucu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguuuggagc aauagccggg uuuauagaag guggauggcc cggacugauc 1080

aauggauggu acggguuuca acauagaaau gaagaaggaa caggcauagc agcagacaaa 1140

gagucaacuc agaaggcaau agaccagaua acauccaaag uaaauaauau agucgacaga 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caguugucga aacauguaga ugauucugug gucgacaucu ggucauauaa ugcacaacuu 1320

cucguuuugc uugaaaauga gaaaacccug gaccuccacg auuccaaugu cagaaaucuc 1380

caugagaagg uuagaagaau gcuaaaggac aaugccaaag acgaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaaugaaugc aucgaaaggg uuagaaacgg gacauaugau 1500

cacaaggaau ucgaagaaga aucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacucuagug ggaaugugua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cgcucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42354
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81214

<400> 42354
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aucggcuacu uaagcaacaa cucaacagac aaaguugaca caauaauuga aaacaauguc 120

acuguaacua gcucagugga acuagucgaa acagaacaca cugggucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuuug cuggguggau auugggaaau 240

cccaugugug augaccuaau ugguaagacu ucaugguccu acauugugga gaagcccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggag uccuggaauu cagcaaauuc gaagcauuca caucaaacgg augggugcu 420

guaaauucag gagcaggagu gacugcugca ugcaaguuug ggagcuccaa uuccuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaauaaa gaggaccuuc 540

aacaacacca agggaagaga uguguugauu guuuggggaa uucaccaccc ugcaacacug 600

aaagagcacc aggaucuaua caagaaggac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugaccu uuuauuggac aauagucaaa ccaggagagu caauaacauu ugagucuaau 780

ggugcauucc uagcuccuag auaugcuuuu gagauugucu ccguugggaa ugggaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacaga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cacagaaaca cuaucggaga cuguccccaaa 960

uaugugaaug ucaaaucucu aaagcuugcc acgggacuca gaaauguccc agcaauaaca 1020

ucaagaggcu uguuuggagc aauagccggg uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acgggguuuca acauaggaau gaagaaggaa caggcauagc ggcagacaag 1140

gagucaacuc agaaggcaau agaccagaua acguccaaag uaaauaauau cgucgacaga 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagaggg gaggauaaac 1260

caguugucga aacauguaga ugauucugug gucgacaucu ggucauauaa ugcacagcuu 1320

cucguuuugc uugaaaauga gaagacccug gaucuccacg auuccaaugu cagaaaucuc 1380

caugagaagg uuagaaggau gcuaaaggac aaugccaaag acgaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaaugaaugc auugaaaggg uuagaaacgg aacauaugau 1500

cacaaggaau ucgaagaaga aucuaaaaua aaucgucagg agaucgaggg agugaaauua 1560

gacucuagug ggaaugugua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cacucaucau gggguuucauc cucugggcgu gcaguaacgg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42355
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81215

<400> 42355
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aucggcuauu uaagcaacaa cucaacagac aagguugaca caauaaucga gaacaauguc 120

acaguaacua gcucagugga acuaguugaa acagaacaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuuug cgggguggau auugggaaau 240

cccaugugug auggccuaau ugguaagacu ucaugguccu acauugugga gaagcccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggaa uacuggaauu cagcaaauuc gaagcauuca caucaaacgg augggugcu 420

gugaauucag gagcaggagu gacugcugca ugcaaguuug ggagcuccaa uuccuucuuc 480

cgacacaugg uauggcugau acaccaaucg ggaacauacc cuguaauaaa gaggaccuuc 540

aacaacacca aaggaagaga uguguugguu guuuggggaa uucaccaccc ugccacacug 600

aaagagcaac aggaucuaua caagaaggac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaagcugga 720

cggaugacau uuuauuggac aauagucaaa ccaggagagu caauaacauu ugagucuaau 780

ggugcauucc uagcuccuag auaugcuuuu gagauuguuu ccguuggaaa uggaaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacaga aauaggaggg 900

auuaauacaa acaaaagcuu ucacaguguu cacagaaaca cuaucggaga cugucccaaa 960

uaugugaaug ucaaaucucu aaagcuugcc acaggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguuuggggc aauagccgga uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acggguuuca acauagaaau gaagaaggaa caggcauagc agcagacaag 1140

gagucaacuc agaaggcaau agaccaaaua acguccaaag uaaauaauau cgucgacaga 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caguugucga aacauguaga ugauucugug gucgacaucu ggucauauaa ugcacagcuc 1320

cucguuuugc uugaaaauga gaagacccug gaccuccacg auuccaaugu cagaaaucuc 1380

caugagaagg uuagaagaau gcuaaaggac aaugccaaag acgaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaaugaaugc aucgaaaggg uuagaaacgg aacauaugau 1500

cacaaagaau uugaagaaga aucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacuccagug ggaaugugua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcgg cacucauuau gggguuucauc cucugggcau gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42356
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81216

<400> 42356
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aucggcuauu uaagcaacaa cucaacagac aaaguugaca caauaaucga gaacaauguc 120

acgguaacua gcucagugga acuagucgaa acagagcaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcuccuuug cuggguggau auuggggaau 240

cccaugugug augaucuaau ugguaagacu ucaugguccu acauuguaga gaagcccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggag uccuggaauu cagcaaauuu gaagcauuca caucaaaugg augggugcu 420

guaaauucag gagcaggagu gacugcugca ugcaaguuug ggagcuccaa uuccuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauacc cuguaacaaa aaggaccuuc 540

aacaacacca aaggaagaga uguguugguu gucuggggaa uucaccaccc ugccacacug 600

aaagagcauc aggaucuaua caagaaggac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucacacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugacau uuuauuggac aauagucaaa ccaggagagu caauaacauu ugagucuaau 780

ggugcauucu uggcuccuag auaugcuuuu gaaauugucu ccguuggaaa uggaaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacaga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cauaggaaca cuaucggaga uugccccaaa 960

uauguaaaug ucaagucucu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaaaaggcu uauuuggagc aauagccgga uuuauagaag guggauggcc ugggcugauc 1080

aauggauggu acggauuuca acacaggaau gaagaaggga cagguauagc agcagacaaa 1140

gagucaacuc agaaggcaau agaccaaaua acguccaaag uaaacaauau cgucgacagg 1200

augaauacaa auuucgaguc uguucgacac gaguucagug aaauagagga gaggauaaau 1260

caauugucga aacauguaga ugauucugua guugacaucu ggucauauaa ugcacaacuc 1320

cucguuuugc uugaaaauga gaagacccug gaccuucacg auuccaaugu cagaaaucuc 1380

caugagaggg uuagaaggau gcuaaaagac aaugccaaag augaggggaa cggauguuuc 1440

accuuuuacc acaaguguga caacgaaugc auugaaaggg ucagaaacgg gacauaugau 1500

cacaaagaau ucgaggaaga auccaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacuccagug ggaaugugua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

guauuggcag cacucaucau gggguuucauc cucugggcgu gcgguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42357
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGQ81217

<400> 42357
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aucggcuauu uaagcaacaa uucaacagac aaagucgaca caauaaucga gaacaauguc 120

acgguaacua gcucagugga acuagucgag acagaacaca cuggaucauu cuguucaauc 180

aaugggaaac aaccaauaag ccuuggagau ugcucuuucg cuggguggau auuggggaau 240

cccaugugug augaccuaau ugguaagacu ucauggucuu acaucgugga gaaacccaac 300

ccagcaaacg gaaucuguua cccaggaaca uuggagaaug aagaagaacu gagauugaaa 360

uucaguggag uccuggaauu cagcagauuc gaagcauuca caucaaacgg augggugcu 420

guaaauucag gagcaggagu gacugcugca uguaaguuug ggagcuccaa uuccuucuuc 480

cgaaacaugg uauggcugau acaccaauca ggaacauauc cuguaauaaa gaggaccuuc 540

aacaacacca aaggaagaga uguguugguu guuuggggaa uucaccaccc ugccacacug 600

aaagagcauc aggaccuaua caagaaggac agcuccuaug uagcaguggg uucagaaacc 660

uacaacagga gauucauacc agaaaucagc acuaggccca aaguuaaugg acaggcugga 720

cggaugacau uuuauuggac aauagucaaa ccagaggagu caauaacauu ugaaucuaau 780

ggugcauucc uggcuccuag auaugcuuuu gagauugucu cuguuggaaa ugggaaacua 840

uucaggagug aacugaauau ugaaucaugc ucuaccaaau gucaaacgga aauaggagga 900

auuaauacaa acaaaagcuu ucacaguguu cauagaaaca cuaucggaga cugucccaaa 960

uaugugaaug ucaaaucguu aaagcuugcc acgggacuca gaaauguccc agcaauagca 1020

ucaagaggcu uguucggagc aauagccggg uuuauagaag guggauggcc uggacugauc 1080

aauggauggu acgggguuuca acacaggaau gaagaaggaa cagguauagc agcagacaag 1140

gagucaacuc agaaggcaau agaccagaua acguccaaag uaaauaauau cgucgacagg 1200

augaauacaa auuucgaguc ugugcaacac gaauucagug aaauagagga gaggauaaac 1260

caauugucga aacauguaga ugauucugug guugacaucu ggucauauaa ugcacaacuc 1320

cucguuuugc uugaaaauga gaagacccug gaccuccaug auuccaaugu cagaaaucuc 1380

caugagaagg uuaggagaau gcuaaaggac aaugccaaag augaggggaa cggauguuuc 1440

accuuuuacc auaaguguga uaaugaaugc aucgaaaggg uuaggaacgg gacauacgau 1500

cacaaagaau ucgaggaaga aucuaaaauc aaucgucagg agaucgaggg agugaaauua 1560

gacuccagug ggaaugucua uaaaauacug ucaauuuaca gcugcauugc aagcagucuc 1620

auauuggcag cacucaucau gggguuucauc cucugggcgu gcaguaaugg aucauguaga 1680

uguaccauuu gcauuuag 1698

<210> 42358
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGQ88499

<400> 42358
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auugguuauc augcaaauaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugcca gaauggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaggaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaaua caaaucaucc ccaaagauuc uuggacagau 420

caugaagccu cauugggggu gagugcagca uguccauacc agggaaauuc cuccuucuuc 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaggcuac 540

aauaauacua accaagaaga ucucuuggua cugugggggа uucaccaucc uaauaaugag 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaauaaacgg acaaaguggc 720

agaauagauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucaacaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaggu gucagacucc gauaggggcg 900

auaaacucua guaugccguu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaacu aguccuugcu acugggcuca gaaauagucc ucaaagagag 1020

agaagaagaa aaagaggauu guuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cacagcaaug agcaggggag uggguacgcu 1140

gcagacaagg aaucaacuca aaaggcaaua gacggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guaggaaggg aauuuaauaa cuuagagagg 1260

agaauagaga auuugaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuaccauga cucaaauguc 1380

aggaaccuuu acgacaaggu cagacuacag cuuaaggaua acgcaaaaga gcuggguaac 1440

gguuguuucg aguucuauca caaauguaau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aaucuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucccuaguac uggcaaucau gauggcuggu cuaucuuuau ggauguguuc caacgggucg 1680

uuacagugca gaauuugcau uuaa 1704

<210> 42359
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGR33888

<400> 42359

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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aaccgaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42360
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR33889

<400> 42360
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aaccgaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggagucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggaguaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaggaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42361
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGR33890

<400> 42361
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucga caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42362
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR33892

<400> 42362
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucaa caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcucuaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaaaug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucacuu uuagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucagau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau auguguagaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42363
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR33895

<400> 42363
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aucugccucg gacaucaugc ugugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caagcauccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uccuagggac aaucacuggg 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcggaaucgu caaggaagca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccuaucaa acacagauaa ugcugcuuuc ccgccgauga cuaagucaua uaaaaauaca 540

agaaaggccc cagcuauaau aauaugggg auccaucauu ccggaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguua ggaguucuaa uuaucaacaa 660

ucuuuugugc cgaguccagg agcgggacca caaguuaaug gucaaucugg aaggauugac 720

uuucauuggc uaaugcuaaa ucccaaugac acagucaccu ucagcuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga gggaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagua gagggacaau aauaaguaau 900

uugccauuuc agaacauaga cagcagagua guaggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugggugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uuaaucaaau gacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucacu gagguagaga agcaaauugg uaaugugaua 1260

aauuggacca gagacucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa ugaacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaaaugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggagg aagcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

gcaaugggcc uugucuucau augugugaaa aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42364
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR33897

<400> 42364
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccgucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag cgauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42365
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42365
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa gggagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag caauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggcaua aaucacccac ccaccgacac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc aggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga uucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaguaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42366
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR33900

<400> 42366
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag agaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acaaugggac aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag cgauuacccu auucaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauuggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucag uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaagg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaagua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggauua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga ucuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 42367
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR33902

<400> 42367
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga ucuucccaga caccaccugg 420

aaugugucuu acaaugggau aagcaaagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc aaaagaacag caauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaagaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaua accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uag 1683

<210> 42368
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49817

<400> 42368
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 42369
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49841

<400> 42369
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaccaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccaggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa uaggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 42370
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGR49853

<400> 42370

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 42371
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49865

<400> 42371
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaauc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguuaacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga auagaggcuu uggaucaggg 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagacg uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 42372
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49877

<400> 42372
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42373
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49888

<400> 42373
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ggaaaugaca acagcacugc gacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauugaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42374
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49900

<400> 42374
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaaaaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaaauguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaacugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42375
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49912

<400> 42375
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aaccguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuaaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augugaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42376
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49924

<400> 42376
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aaccguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuaaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augugaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaguc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42377
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49936

<400> 42377

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccgggu 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaac 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42378
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49948

<400> 42378
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ggaaaugaca acagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagauccaau 480

aacaguuucu uuaguagacu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacugugauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgagguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42379
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49960

<400> 42379
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacca ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuua 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42380
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49972

<400> 42380
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacaaua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42381
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49983

<400> 42381
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaagg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 42382
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR49995

<400> 42382
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaagg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 42383
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50007

<400> 42383
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50018

<400> 42384
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42385
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50029

<400> 42385
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42386
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50040

<400> 42386
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca ugggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42387
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50052

<400> 42387
augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGR50063

<400> 42388

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugagucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42389
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50074

<400> 42389
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42390
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50085

<400> 42390
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50096

<400> 42391
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50107

<400> 42392
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50118

<400> 42393
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50129

<400> 42394
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggacaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42395
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50140

<400> 42395

augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50151

<400> 42396
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42397
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50162

<400> 42397
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaagg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 42398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50174

<400> 42398
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42399
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50185

<400> 42399
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42400
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50196

<400> 42400
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42401
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50207

<400> 42401
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacugugg acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaaau cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50218

<400> 42402
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50229

<400> 42403
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa aucuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50240

<400> 42404
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau gggguauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42405
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50251

<400> 42405
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuga uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGR50262

<400> 42406

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaaa acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42407
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50273

<400> 42407
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50284

<400> 42408
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauuc accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42409
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50295

<400> 42409
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42410
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50306

<400> 42410
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42411
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50317

<400> 42411
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50328

<400> 42412
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaaau cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42413
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50339

<400> 42413

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacauccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50350

<400> 42414
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucauggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42415
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGR50361

<400> 42415
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 42416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18718

<400> 42416
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42417
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18720

<400> 42417
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaaau 600

acgacugcgg accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaaaggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaagg acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18721

<400> 42418
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc aauacaaagg ucugagauau gcaccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacugu ggggcauuca ccaucaaaau 600

agcagggguc accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaaggaacaa 720

gacggcagaa uggacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42419
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18722

<400> 42419
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aaaucaaaca acagaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagguagga ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42420
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18723

<400> 42420
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aaaacaaaca acagaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccaucaaaau 600

aagaaggcgg aacaacaaac acccuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagguagga uggacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauucauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18724

<400> 42421
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagucccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aaaacaaaca acagaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaac acucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua ccggacacua auagagccgg aaaacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugcuauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18725

<400> 42422
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucg 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagacg cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aacccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42423
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18734

<400> 42423
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gaccaaaagu gagggaucaa 720

gaagggagaa uuaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGT18735

<400> 42424

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42425
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18748

<400> 42425
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugauga ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa uugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18749

<400> 42426
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgga ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augugacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggaguuac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucagaauacg aaguggggaga 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag agggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42427
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18751

<400> 42427
augaagacug ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaga 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc cagaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaag 1320

ucggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGT18752

<400> 42428
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcaacagu ccucaucaga uacuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaga 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacagc 1320

ucggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42429
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18753

<400> 42429
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcaacagu ccucaucaga uacuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaga 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaag 1320

ucggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18754

<400> 42430
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgga ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augugacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgagg caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc ucaggucacu aguugccaca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaga 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag agggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42431
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18756

<400> 42431

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaag 1320

ucggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18757

<400> 42432
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42433
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18758

<400> 42433
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug ccugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacagc 1320

ucggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa uugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugguuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18759

<400> 42434
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug ccugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacagc 1320

ucggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugguuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42435
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18760

<400> 42435
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaaa caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaag 1320

ucggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugguuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT18761

<400> 42436
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacagc 1320

ucggaguuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugguuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42437
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGT37102

<400> 42437
auggaagcaa aacuaguugu acuauucugu gcauucacua cacugaaagc ugacaucauu 60

uguguaggcu accaugcuaa caauuccaca gacacugucg acacaauaau ggagaagaau 120

gugacuguca cccauucggu uaauuuacua gaaaacagcc auaauggaaa acucugcagc 180

cugaauggaa aggccccuuu acaacuggga aauugcaacg uagcaggaug gauccuuggc 240

aacccagaau gugaccugcu ucucaccgca aauucguggu cauacauaau agagacuuca 300

aguucaaaga auggaacaug cuacccugga gaauucucug auuaugagga auuaagggag 360

uugcugagua caguuuccuc auuugaaaga uuugaaauuu ucccaaaagc aaccucaugg 420

ccaaaucaug aaacaaccaa aggugccaca auugcgugcu cccacucugg agccagcagu 480

uuuuauagga acuugcuaug gauaguaaag aagggaaacu ccuacccuaa gaucagcaaa 540

ucauacacaa acaacagagg gaaggaagug cuuguaaucu ggggagugca ccacccuccg 600

acugacagua gccaacaagc ccucuaucag aauacccaua cauauauuuc aguuggauca 660

ucaaaauacu accaaagguu cacaccagua guagcagcca gacccaaaau cagagaacaa 720

gaaggcagaa ugaauuauua cuggacacug uuagaacaag gagauaccau aacuuuugaa 780

gccacuggaa acuuaauagc accaugguac gcauuugcau uggauauggg aucuagcucu 840

ggaauuaugg ugucggaugc uccuguucac aauuguacua caaaguguca aaccccucau 900

ggggccuuga aaagcaaucu uccuuuucag aauguacauc ccaucacuau uggagaaugc 960

cccaaauaug uuaaaagcac ccaacuaaga auggcaacag gauuaaggaa uauaccgucc 1020

auucaaucca gaggacuuuu uggggcaauu gccggauuca uugaaggagg auggacagga 1080

augauagaug guugguaugg auaccaccau caaaaugagc agggaucugg cuacgccgca 1140

gaucagaaaa gcacacaaau ugcgauugau gggaucagca acaagguaaa cucaauaauu 1200

gaaaaaauga acguucaauu uacuucagug ggcaaggagu ucaaugaucu agagaaaagg 1260

auugagaauu uaaacaagaa agucgaugau ggauuuuugg auguauggac auauaacgcu 1320

gaauugcucg uuuugcucga aaacgaaaga acucuagauu uccaugacuu uaacguaaaa 1380

aauuuauaug aaaaggucaa aucacaacug aggaacaaug ccaaggaaau cgggaauggc 1440

uguuucgagu ucuaccacaa augugauaau gaaugcaugg aaaacgugaa gaauggcacu 1500

uauaauuauc ccaaauauuc agaagaaucc aaacuaaaua gagagaaaau agacggugua 1560

aaacuagaau caauaggagu ccaccagauu uuggcgaucu acuccacagu cgccaguucc 1620

cugguuuugu uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucauug 1680

caaugcagaa uaugcauuua a 1701

<210> 42438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01877

<400> 42438
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauaugucuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01878

<400> 42439
augaaggcaa uacuaguagu uaugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01879

<400> 42440
augaaggcaa uacuaguagu uaugcuguau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaaac auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugccg accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaau acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 42441
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01881

<400> 42441
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaggcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGU01883

<400> 42442

augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua auaacaaaga gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacugcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 42443
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01884

<400> 42443
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg aaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01885

<400> 42444
augaaggcaa uacuaguagu uaugcuguau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaaac auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugccg accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua ggggccuauu ugggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaau acgugcaugg aaagugucaa aaaugggacc 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 42445
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01887

<400> 42445
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug aucaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcag uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01888

<400> 42446
augaaggcaa uacuaguagu uaugcuguau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugccg accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua ggggccuauu uggggccauu gcuggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacgguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 42447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01889

<400> 42447
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU01890

<400> 42448
augaaggcaa uacuaguagu uaugcuguau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugccg accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu ugggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggguucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaauaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 42449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92645

<400> 42449

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagaaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92667

<400> 42450
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga gcuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42451
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92678

<400> 42451
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguc accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92711

<400> 42452
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa caaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc cgaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42453
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92722

<400> 42453
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92733

<400> 42454
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42455
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92744

<400> 42455
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggggcu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92755

<400> 42456
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaaggaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42457
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92766

<400> 42457
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau ggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92777

<400> 42458
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag uaucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42459
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92788

<400> 42459
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

auguuagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGU92799

<400> 42460

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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92821

<400> 42461
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagauguu caagccggaa auagcaacaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92843

<400> 42462
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42463
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92854

<400> 42463
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaauaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccgucua uucaaucuag aggccuauuu ggggccauug ccgguuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacagaau gccauugacg agauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcaguag guaaagaguu caaccaccug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacuguuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuauauga aaagguaaga agccagcuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaagaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca guuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 42464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92887

<400> 42464
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugaug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92898

<400> 42465
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagaaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92909

<400> 42466
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga gcuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92931

<400> 42467

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa caaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92942

<400> 42468
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92953

<400> 42469
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92964

<400> 42470
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

auguuagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42471
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92975

<400> 42471
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92986

<400> 42472
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42473
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU92997

<400> 42473
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagauguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU93008

<400> 42474
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugaug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42475
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU93019

<400> 42475
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugcuaa auugaggaug guuacaggac uaaggaacac uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 42476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU93031

<400> 42476
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gaccuaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacgg gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aaccuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42477
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGU93042

<400> 42477
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cucaacagca aacucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auauacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

uguuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGU93053

<400> 42478

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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99014

<400> 42479
augaagacua ucauugcuuu gagcuacauu cuaugucuag uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99037

<400> 42480
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99049

<400> 42481
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauuggcug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgggaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gauuaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99073

<400> 42482
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agccagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99085

<400> 42483
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ggaaaugaca auagcacggc aacgcugugc cuuggggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99097

<400> 42484
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg ggucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagauuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99121

<400> 42485

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99133

<400> 42486
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99145

<400> 42487
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99157

<400> 42488
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga uacacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42489
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99169

<400> 42489
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99181

<400> 42490
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99193

<400> 42491
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga uacacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99956

<400> 42492
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42493
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGV99986

<400> 42493
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00065

<400> 42494
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42495
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00077

<400> 42495
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGW00089

<400> 42496

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggugcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00101

<400> 42497
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00113

<400> 42498
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00125

<400> 42499
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00137

<400> 42500
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaga gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00149

<400> 42501
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacag acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaagcugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00161

<400> 42502
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42503
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00173

<400> 42503

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00185

<400> 42504
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42505
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00709

<400> 42505
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00721

<400> 42506
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42507
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00733

<400> 42507
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00745

<400> 42508
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42509
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00757

<400> 42509
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauuuaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00769

<400> 42510
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42511
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00781

<400> 42511
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauauug ggucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00793

<400> 42512
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42513
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00805

<400> 42513
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGW00817

<400> 42514

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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00841

<400> 42516
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa uggccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00853

<400> 42517
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00865

<400> 42518
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42519
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00877

<400> 42519
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauuuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgagggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00889

<400> 42520
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg guccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00901

<400> 42521

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00913

<400> 42522
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggugcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42523
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW00931

<400> 42523
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01244

<400> 42524
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuucug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42525
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01256

<400> 42525
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01295

<400> 42526
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu aggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagauuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01307

<400> 42527
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01319

<400> 42528
augaagacca ucauugcuuu gagcuacauu cuaugucuag uuuucgcuca agaacuuccu 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag aagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauaaauug 1200

aucgggaaaa cuaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42529
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01331

<400> 42529
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugaac acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42530
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01343

<400> 42530
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42531
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGW01355

<400> 42531
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuacu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaacga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGW01367

<400> 42532

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42533
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01391

<400> 42533
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01403

<400> 42534
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42535
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01415

<400> 42535
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01427

<400> 42536
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01439

<400> 42537
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugcauccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42538
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugug gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01463

<400> 42539

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01475

<400> 42540
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01487

<400> 42541
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg gcaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01499

<400> 42542
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugcgaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42543
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01511

<400> 42543
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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcucu gugcugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01535

<400> 42544
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaagaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01547

<400> 42545
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01559

<400> 42546
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01571

<400> 42547
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01583

<400> 42548
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42549
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01595

<400> 42549
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcucc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGW01607

<400> 42550

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuucg uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01619

<400> 42551
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01631

<400> 42552
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01643

<400> 42553
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01655

<400> 42554
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agagguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01667

<400> 42555
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugaa 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01679

<400> 42556
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01691

<400> 42557

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca uaaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc gucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01701

<400> 42558
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01713

<400> 42559
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01725

<400> 42560
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugauuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42561
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01737

<400> 42561
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01749

<400> 42562
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01761

<400> 42563
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagu 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca agauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01773

<400> 42564
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ggaaaugaca auagcacugc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggugcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01785

<400> 42565
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01797

<400> 42566
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42567
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01809

<400> 42567
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGW01821

<400> 42568

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42569
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01833

<400> 42569
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucagaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01845

<400> 42570
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuac caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42571
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01857

<400> 42571
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01869

<400> 42572
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca agauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42573
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01881

<400> 42573
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca uaaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc gucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01893

<400> 42574
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42575
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01905

<400> 42575

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauauug ggucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01917

<400> 42576
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ggaaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42577
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AGW01929

<400> 42577
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42578
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42579
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01953

<400> 42579
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01965

<400> 42580
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ggaaaugaug acagcauggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucauu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugacugca uaggaucaau cagaaaugga 1500

acuuaugauc acaaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42581
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01977

<400> 42581
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag aggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW01989

<400> 42582
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02001

<400> 42583
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uauggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02013

<400> 42584
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42585
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02025

<400> 42585
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaga augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42586
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AGW02037

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42587
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02061

<400> 42587
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42589
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02085

<400> 42589
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02097

<400> 42590
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccua uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02109

<400> 42591
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02133

<400> 42592
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02157

<400> 42593

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag aggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02169

<400> 42594
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuacugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguga acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02181

<400> 42595
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccaggu auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uauggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW02193

<400> 42596
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42597
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW04171

<400> 42597
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42598
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGW27061

<400> 42598
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcucaaga cauacuggag aagacgcaca augggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucgggaac 240

ccaaugugug acgaauucau cgaugugcca gaaugguguu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu aaaacaccua 360

uugagcagaa uaaaccacuu cgagaaaaua cggaucauuc ccaaagauuc uuggccagau 420

caugaagccu cauuggggu gagcgcagca uguucauacc agggaaauuc cucauuuuuc 480

agaaaugugg uauggcuucu caaaaagaac gaugcauacc caauaauaaa gaaaagcuac 540

aauaauacca auaaagaaga ucucuuggua cugugggaa uccaccaucc uaaugaugaa 600

gcagagcaga uaaggcucua ucaaaaccca accaccuaug uuuccacugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauagacu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucaacaauu 840

augaggagug aaguggaaua ugguaacugc agcaccaggu gucagacucc gaugggggcg 900

auaaauucua guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucaaauagag 1020

aggagaagaa gaaaaagggg acuguuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugggguac caucacagca augagcaggg gagugggguau 1140

gcugcagaca aagaauccac ucaaaaggca auagaugggg ucaccaauaa agucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcaguaggaa gggaauuuaa uaacuuagag 1260

aggaggauag agaauuuaaa caagaaaaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uccugguucu aauggaaaau gagagaacuc uagacuucca ugacucaaau 1380

gucaagaacc uuuacgacaa ggucagacua cagcuuaggg auaaugcaaa agagcugggc 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guacucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucgau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

aguucccuag uacugucaau caugguggcu ggucuaucuu uauggaugug uuccaacggu 1680

ucguuacaau gcagaaugug cauuuaa 1707

<210> 42599
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGY14471

<400> 42599
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uguauaggcu accaugccaa caacucaacu gacacuguug acacaauacu ugaaaagaau 120

gugacaguga cacacucugu caacuuacuu gaggacagcc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccccu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aauccagagu gcggauuacu gauucccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccagga uauuuugacg acuaugagga gcuaagagag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aauggucugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc auacuauggg guguucauca cccgucaaac 600

auagggaacc aaaggacucu cuaucauaca gaaaauacuu augucucugu agugucuuca 660

cauuacagca gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuauuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guaaagguuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcaaucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguua ggaguacaaa auuaaggaug guuacagggc uaaggaacau cccguccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggaggaug gacuggaaug 1080

guagaugggu gguacgguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caagaaagca cacaaaacgc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac aguuguggggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaaagu cgaugaugga uuucuagaca uuuggacaua uaaugcagag 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc acgacuccaa ugugaugaau 1380

uuguaugaga aaguaaaagg ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggagucaa ugggagucua ucagauucug gcgaucuauu caacugucgc uaguucccug 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 42600
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGY14477

<400> 42600
augaaaguaa aacuacugau ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacu gacacuguug acacaauacu ugaaaagaau 120

gugacaguga cacacucugu caacuuacuu gaggacagcc acaauggaaa acuauguuua 180

cuaaaaggaa uagccccccu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aauccagagu gcggauuacu gauucccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccagga uauuuugacg acuaugagga gcuaagagag 360

caauugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aauggucugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuc auacuauggg guguucauca cccgucaaac 600

auagggaacc aaaggacucu cuaucauaca gaaaauacuu augucucugu agugucuuca 660

cauuacagca gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuauuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc augguaugcu uucgcacuga guaaagguuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcaaucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguua ggaguacaaa auuaaggaug guuacagggc uaaggaacau cccguccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggaggaug gacuggaaug 1080

guagaugggu gguacgguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caagaaagca cacaaaacgc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac aguuguggggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaaagu cgaugaugga uuucuagaca uuuggacaua uaaugcagag 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggauuucc acgacuccaa ugugaugaau 1380

uuguaugaga aaguaaaagg ccaauuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacaacgaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg aaaaaauuga uggagugaaa 1560

uuggagucaa ugggagucua ucagauucug gcgaucuauu caacugucgc uaguucccug 1620

guucuuuuag ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 42601
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC57459

<400> 42601
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC57465

<400> 42602
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42603
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC57487

<400> 42603
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC57499

<400> 42604
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42605
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC57511

<400> 42605
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC57523

<400> 42606
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC57675

<400> 42607
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42608
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 42609
<211> 1701
<212> RNA
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaucu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42611
<211> 1701
<212> RNA
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<220>
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<400> 42611

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42613
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaguaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccaauuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

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agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42615
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58050

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccagaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58074

<400> 42616
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42617
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42617
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58110

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58126

<400> 42619
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58138

<400> 42620
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuc gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42621
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58162

<400> 42621
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC58186

<400> 42622

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58198

<400> 42623
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaga accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg acugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58210

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa cgguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42625
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58234

<400> 42625
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58246

<400> 42626
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58258

<400> 42627
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58270

<400> 42628
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58372

<400> 42629

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac gaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58396

<400> 42630
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42631
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58408

<400> 42631
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58420

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42633
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58432

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58444

<400> 42634
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42635
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58456

<400> 42635
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58468

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaggacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucccuaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaagaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42637
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58479

<400> 42637
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucaa gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42638
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58491

<400> 42638
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug ucgaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 42640
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<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42641
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<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu aaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<212> RNA
<213> Artificial Sequence

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42644
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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aggugcaaca uuugcauuug a 1701

<210> 42645
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

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<210> 42646
<211> 1701
<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42647
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58647

<400> 42647

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42648
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58659

<400> 42648
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42649
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC58671

<400> 42649
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58683

<400> 42650
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42651
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58695

<400> 42651
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58707

<400> 42652
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu gauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42653
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58719

<400> 42653
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu gauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58731

<400> 42654
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacuaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag uaaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acucacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42655
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58743

<400> 42655
augaagacua ucauugcuug gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58755

<400> 42656
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42657
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58779

<400> 42657
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag ggggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42658
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC58791

<400> 42658

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

aacaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42659
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58803

<400> 42659
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucaa gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42660
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58815

<400> 42660
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg aggaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaguu gaauagauug 1200

auagggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42661
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58827

<400> 42661
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aacgccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42662
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58839

<400> 42662
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42663
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58863

<400> 42663
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguguc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaacu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42664
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58875

<400> 42664
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aacgccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42665
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58887

<400> 42665

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42666
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58899

<400> 42666
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gggaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg ggucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42667
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58981

<400> 42667
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42668
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC58993

<400> 42668
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42669
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59005

<400> 42669
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42670
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59017

<400> 42670
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

agcaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42671
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59029

<400> 42671
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59041

<400> 42672
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagauccaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42673
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59053

<400> 42673
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugga ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59077

<400> 42674
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42675
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59089

<400> 42675
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42676
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC59101

<400> 42676

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42677
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59113

<400> 42677
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42678
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59125

<400> 42678
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa cgguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42679
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59137

<400> 42679
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguguc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaacu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42680
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59149

<400> 42680
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42681
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59185

<400> 42681
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59197

<400> 42682
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42683
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59209

<400> 42683

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcgaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgcugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42684
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59221

<400> 42684
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42685
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59245

<400> 42685
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguguc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaucuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaacu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42686
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59257

<400> 42686
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42687
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59269

<400> 42687
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42688
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59281

<400> 42688
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaagcaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauaa augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42689
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59293

<400> 42689
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42690
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59305

<400> 42690
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcagcagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42691
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59329

<400> 42691
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg aaaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugccccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa acgcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42692
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59341

<400> 42692
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42693
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59365

<400> 42693
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42694
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC59377

<400> 42694

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaga accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42695
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC59413

<400> 42695
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42696
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59425

<400> 42696
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42697
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59437

<400> 42697
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu gauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42698
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59449

<400> 42698
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggagaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42699
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59461

<400> 42699
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42700
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59473

<400> 42700
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg aaaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugccccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa acgcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42701
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59485

<400> 42701

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC59497

<400> 42702
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccau 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42703
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42703
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42704
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC59521

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42705
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59533

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59545

<400> 42706
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagacgaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42707
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59557

<400> 42707
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59569

<400> 42708
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42709
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59581

<400> 42709
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42711
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42712
<211> 1701
<212> RNA
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<220>

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42713
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagacgaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aauaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42715
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59653

<400> 42715
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuacccaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59665

<400> 42716
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59677

<400> 42717
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42718
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuacccaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42719
<211> 1701
<212> RNA
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<220>
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<400> 42719

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg ggucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42720
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag ggggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42721
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42722
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuagcagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42723
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59761

<400> 42723
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59773

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42725
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59785

<400> 42725
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC59797

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42727
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42727
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42728
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauucaucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gccuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaacagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaaucg aucuaacuga cucagaaaug 1380

aacaaacugg uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42729
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC59833

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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aauaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59845

<400> 42730
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42731
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59857

<400> 42731
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42732
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59869

<400> 42732
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42733
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC59881

<400> 42733
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
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<220>
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacuuug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42737
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42737

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42738
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuauu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auauuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42739
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42739
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugacgg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

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uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42740
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42741
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC60011

<400> 42741
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60023

<400> 42742
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caaaaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42743
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60035

<400> 42743
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60047

<400> 42744
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42745
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60059

<400> 42745
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60071

<400> 42746
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42747
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60083

<400> 42747
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC60095

<400> 42748

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42749
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC60107

<400> 42749
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucaa gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42750
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60119

<400> 42750
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42751
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42751
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60143

<400> 42752
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg aggaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaguu gaauagauug 1200

auagggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60155

<400> 42753
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccccaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60167

<400> 42754
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42755
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60179

<400> 42755

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60191

<400> 42756
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42757
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60203

<400> 42757
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60215

<400> 42758
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42759
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60239

<400> 42759
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60251

<400> 42760
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60263

<400> 42761
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaaa acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60275

<400> 42762
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60287

<400> 42763
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucaa gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60299

<400> 42764
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42765
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC60311

<400> 42765
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuga caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60323

<400> 42766
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60335

<400> 42767
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu gauugcuccu agagguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60347

<400> 42768
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugacgg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60359

<400> 42769
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60371

<400> 42770
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg aaaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugccccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa acgcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42771
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60383

<400> 42771
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60395

<400> 42772
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagacgaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42773
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC60407

<400> 42773

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 42774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42774
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugua uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42775
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42775
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42776
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42776
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42777
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 42777
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42778
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC60479

<400> 42778
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

aacaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42779
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60491

<400> 42779
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60503

<400> 42780
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcguuguuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42781
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42781
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60527

<400> 42782
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42783
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60539

<400> 42783
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42784
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC60551

<400> 42784

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60563

<400> 42785
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucugggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60575

<400> 42786
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42787
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60587

<400> 42787
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaga accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42788
<211> 1701
<212> RNA
<213> Artificial Sequence

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42791
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42791

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg auaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucugggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 42792
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42793
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 42795
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

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uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa uaagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42796
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42796
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu auccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42797
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgga ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucauaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC60719

<400> 42798
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60731

<400> 42799
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42800
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60743

<400> 42800
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42801
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60767

<400> 42801
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc gaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC60779

<400> 42802

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaga 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42803
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60791

<400> 42803
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC60803

<400> 42804
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguguc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaacu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42805
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60815

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugacgg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60827

<400> 42806
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa cagaugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42807
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60839

<400> 42807
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42808
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60851

<400> 42808
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42809
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60863

<400> 42809

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga aggcagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60875

<400> 42810
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42811
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60887

<400> 42811
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42812
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60899

<400> 42812
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc gaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguccag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42813
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60911

<400> 42813
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42814
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60923

<400> 42814
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42815
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60935

<400> 42815
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42816
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60947

<400> 42816
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42817
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60959

<400> 42817
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42818
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60971

<400> 42818
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42819
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC60983

<400> 42819
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42820
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC61007

<400> 42820

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42821
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61019

<400> 42821
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42822
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61031

<400> 42822
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42823
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61043

<400> 42823
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42824
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61055

<400> 42824
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaga accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42825
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61067

<400> 42825
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg aaaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugccccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa acgcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42826
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61079

<400> 42826
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcuccg cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42827
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61103

<400> 42827

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42828
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61115

<400> 42828
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42829
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61127

<400> 42829
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61139

<400> 42830
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuacccaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42831
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61151

<400> 42831
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61163

<400> 42832
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaguu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42833
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61175

<400> 42833
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42834
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61187

<400> 42834
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42835
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61199

<400> 42835
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61211

<400> 42836
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacggua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42837
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61223

<400> 42837
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC61235

<400> 42838

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagauccaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42839
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61247

<400> 42839
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61259

<400> 42840
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42841
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61271

<400> 42841
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61283

<400> 42842
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42843
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC61295

<400> 42843
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC61307

<400> 42844
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggagaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42845
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61319

<400> 42845

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61331

<400> 42846
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gggaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg auaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42847
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61343

<400> 42847
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacggua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61355

<400> 42848
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg ggucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42849
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61367

<400> 42849
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61379

<400> 42850
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguugaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61391

<400> 42851
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61403

<400> 42852
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguuccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61415

<400> 42853
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61427

<400> 42854
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caauaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa uaagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42855
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61439

<400> 42855
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggauca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61451

<400> 42856
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61463

<400> 42857
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61475

<400> 42858
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61487

<400> 42859
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61499

<400> 42860
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61511

<400> 42861
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61523

<400> 42862
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccguauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61535

<400> 42863

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc gaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagua cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu aaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

accaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61547

<400> 42864
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61559

<400> 42865
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaggccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaguugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucaggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggca caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61571

<400> 42866
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42867
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61583

<400> 42867
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61595

<400> 42868
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42869
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61607

<400> 42869
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca acacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61619

<400> 42870
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42871
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61631

<400> 42871
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acaauaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaucuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61643

<400> 42872
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gaaaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42873
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61655

<400> 42873
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caauaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa uaagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42874
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC61667

<400> 42874

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu gauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42875
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC61679

<400> 42875
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacggua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42877
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42878
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61715

<400> 42878
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguguc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaucuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaacu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42879
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC61727

<400> 42879
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42880
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61739

<400> 42880
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aacgccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42881
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61751

<400> 42881

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaaugucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42882
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61763

<400> 42882
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42883
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42883
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa uaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42884
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42884
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42885
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 42885
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacggua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61823

<400> 42886
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu gacaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61835

<400> 42887
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61847

<400> 42888
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42889
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61859

<400> 42889
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61871

<400> 42890
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61883

<400> 42891
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuagcuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42892
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC61895

<400> 42892

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42893
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61907

<400> 42893
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61931

<400> 42894
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagguugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61943

<400> 42895
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61955

<400> 42896
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC61967

<400> 42897
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42898
<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42899
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC61991

<400> 42899

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42900
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 42900
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42902
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62027

<400> 42902
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42903
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62039

<400> 42903
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacuuug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auucuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42904
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62050

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauguccccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62062

<400> 42905
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62074

<400> 42906
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc gaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaaaccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42907
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62086

<400> 42907
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42908
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62098

<400> 42908
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42909
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62110

<400> 42909
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62122

<400> 42910
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga aaugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaccaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauuccg gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42911
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62134

<400> 42911
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaacu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaucaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42912
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62146

<400> 42912
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagacu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu augagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucugggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42913
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62158

<400> 42913
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccuaauaucg gaucuagacc cagaguaagg 720

aacaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaacu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42915
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 42915
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42916
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62194

<400> 42916
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42917
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62206

<400> 42917

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucauuugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg auaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucugggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42918
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62218

<400> 42918
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguugaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42919
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62242

<400> 42919
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ggaaaugaca acagcacggc aacgcuaugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuauugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42920
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62254

<400> 42920
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42921
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62266

<400> 42921
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62278

<400> 42922
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62302

<400> 42924
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcugaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42925
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62314

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucagggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62326

<400> 42926
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cuucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42927
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62338

<400> 42927
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62350

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42929
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62362

<400> 42929
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62374

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42931
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62386

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42933
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa uaagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62422

<400> 42934
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42935
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62434

<400> 42935

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62446

<400> 42936
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42937
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62458

<400> 42937
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42938
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62470

<400> 42938
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaaugg caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42939
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62482

<400> 42939
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg aaaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62506

<400> 42940
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42941
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62518

<400> 42941
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62530

<400> 42942
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42943
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62542

<400> 42943
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcaguguc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaacu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62554

<400> 42944
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42945
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHC62566

<400> 42945
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auggugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHC62578

<400> 42946

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62590

<400> 42947
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62602

<400> 42948
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucaa 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42949
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62614

<400> 42949
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuacuaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62626

<400> 42950
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42951
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62638

<400> 42951
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42952
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62650

<400> 42952
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaucaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42953
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62662

<400> 42953

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42954
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHC62674

<400> 42954
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gggaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uagaaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42955
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37972

<400> 42955
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucucu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37973

<400> 42956
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aacaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa uaaacuauua cuggacacua auagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42957
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37974

<400> 42957
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37975

<400> 42958
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42959
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37976

<400> 42959
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccgcagca aguucauggu ccuacauugu ggaaacaucu 300

aguucaaaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcugu ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcggaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gaggaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37977

<400> 42960
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37978

<400> 42961
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucucu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42962
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37979

<400> 42962
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuagacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaaaaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 42963
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37980

<400> 42963
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acaucuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggauu aucacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42964
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHE37981

<400> 42964

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua aucgagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca ucgaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auauacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42965
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37982

<400> 42965
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac guacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa uggaucucua 1680

caguguagaa uauguauuua a 1701

<210> 42966
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37983

<400> 42966
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcgaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42967
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37984

<400> 42967
auggaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cccacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42968
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37985

<400> 42968
augaagacca ucauugcuuu gagcuacauu cuaugucuag uuuucgcuca agaacuuccu 60

ggaaaugacg acagcacggc aacacugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgagggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42969
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37986

<400> 42969
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu auauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42970
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37987

<400> 42970
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42971
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37988

<400> 42971

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacggg acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacca ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaga accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42972
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37989

<400> 42972
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42973
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37990

<400> 42973
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42974
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37991

<400> 42974
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucga uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu auauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauaac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42975
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE37992

<400> 42975
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuga caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaaugugcca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgagggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42976
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE38023

<400> 42976
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42977
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE38024

<400> 42977
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE38026

<400> 42978
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augaaaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 42979
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHE38027

<400> 42979
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 42980
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHF20558

<400> 42980
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggauccucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uauggcuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguacag aauggaaaca ugcggugcac uauugguaua 1680

uaa 1683

<210> 42981
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHF20568

<400> 42981
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aaugaguaac 900

uugccauuuc agaauauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 42982
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHG96108

<400> 42982

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42983
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96120

<400> 42983
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42984
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96132

<400> 42984
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42985
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96144

<400> 42985
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugucc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42986
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42987
<211> 1698
<212> RNA
<213> Artificial Sequence

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42988
<211> 1698
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AHG96180

<400> 42988
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42989
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96192

<400> 42989

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42990
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96204

<400> 42990
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42991
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96216

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42992
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHG96228

<400> 42992
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu aagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42993
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96240

<400> 42993
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugucc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42994
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96252

<400> 42994
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42995
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96264

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42996
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96276

<400> 42996
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42997
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96288

<400> 42997
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42998
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96300

<400> 42998
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 42999
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96312

<400> 42999
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagucccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagcu aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43000
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHG96313

<400> 43000

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaccag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43001
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96314

<400> 43001
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acacuagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacagua cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43002
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96315

<400> 43002
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43003
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96316

<400> 43003
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccaua gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43004
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96317

<400> 43004
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucuuuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua auaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43005
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96320

<400> 43005
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43006
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96321

<400> 43006
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau ggcuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43007
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96322

<400> 43007

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43008
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96324

<400> 43008
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43009
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96325

<400> 43009
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43010
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96326

<400> 43010
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucag 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43011
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96327

<400> 43011
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43012
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96329

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagauaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugaauacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggugua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43013
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHG96330

<400> 43013
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugagu cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagauaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43014
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96332

<400> 43014
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43015
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96334

<400> 43015
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43016
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96335

<400> 43016
augaaggcaa uacuaguagu ucugcuauau acauuugaaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43017
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96336

<400> 43017
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccgc gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43018
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHG96338

<400> 43018

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caacugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguu cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43019
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96339

<400> 43019
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gcuugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43020
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96340

<400> 43020
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43021
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96341

<400> 43021
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43022
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96342

<400> 43022
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 43023
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96343

<400> 43023
augaaggcaa uacuaguagu ccugcuauau acauuugcaa ccgcaacugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucucguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43024
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96344

<400> 43024
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaauggaacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43025
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96345

<400> 43025

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43026
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96346

<400> 43026
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43027
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96347

<400> 43027
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43028
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96348

<400> 43028
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43029
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96349

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43030
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96350

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43031
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96351

<400> 43031
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43032
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96352

<400> 43032
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43033
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96353

<400> 43033
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43034
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96354

<400> 43034
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43035
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96355

<400> 43035
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu auccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccagcu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43036
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHG96356

<400> 43036

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43037
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96359

<400> 43037
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43038
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96371

<400> 43038
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43039
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96383

<400> 43039
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43040
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96395

<400> 43040
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43041
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96407

<400> 43041
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43042
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96419

<400> 43042
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43043
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96431

<400> 43043

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43044
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96443

<400> 43044
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auauggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43045
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96455

<400> 43045
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43046
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96467

<400> 43046
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43047
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96479

<400> 43047
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43048
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96491

<400> 43048
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43049
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96503

<400> 43049
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccaauuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43050
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96515

<400> 43050
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43051
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96527

<400> 43051
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43052
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96539

<400> 43052
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43053
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96551

<400> 43053
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43054
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHG96563

<400> 43054

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugucc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43055
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96575

<400> 43055
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43056
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96587

<400> 43056
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43057
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96599

<400> 43057
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43058
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96611

<400> 43058
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43059
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96623

<400> 43059
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43060
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96635

<400> 43060
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43061
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96647

<400> 43061

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43062
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96659

<400> 43062
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43063
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96671

<400> 43063
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43064
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96683

<400> 43064
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 43065
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96695

<400> 43065
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43066
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96707

<400> 43066
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43067
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96719

<400> 43067
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43068
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96731

<400> 43068
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43069
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96743

<400> 43069
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96755

<400> 43070
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43071
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96767

<400> 43071
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHG96779

<400> 43072

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43073
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96791

<400> 43073
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccaauuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaagg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43074
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96803

<400> 43074
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43075
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96815

<400> 43075
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43076
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96827

<400> 43076
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43077
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96839

<400> 43077
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96851

<400> 43078
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43079
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96863

<400> 43079

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43080
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43081
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43081
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96899

<400> 43082
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43083
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96911

<400> 43083
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96923

<400> 43084
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43085
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96935

<400> 43085
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96947

<400> 43086
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43087
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHG96959

<400> 43087
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1140

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43088
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43089
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG96983

<400> 43089
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHG96995

<400> 43090

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43091
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG97007

<400> 43091
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG97019

<400> 43092
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43093
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG97031

<400> 43093
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHG97043

<400> 43094
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43095
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHH00866

<400> 43095
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagaccca cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuag aaaacagaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcgua uaugcccaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauccagacc cuggguaagg 720

gguaucucca gcagaauaag caucuauugg acaauaguaa acccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauaaguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc auuaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHH00870

<400> 43096
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacugauag augcucuauu gggagaccca cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuag aaaacagaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcgua uaugcccaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauccagacc cuggguaagg 720

gguaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauaaguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc auuauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43097
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57430

<400> 43097

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaga 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagcg aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau cccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaagg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuggugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcugcaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43098
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57431

<400> 43098
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaagg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43099
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57432

<400> 43099
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccgcaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcau uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguacac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagagg gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43100
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57433

<400> 43100
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43101
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57434

<400> 43101
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguua cacacucugu uaacccucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57435

<400> 43102
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacag agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauaccccaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguu cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43103
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57436

<400> 43103
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc ucaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ucccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa guuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaaucg aucuaacuga cucagaauug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57437

<400> 43104
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aaccguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugaaggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43105
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57438

<400> 43105
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucgggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaaaugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggac 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca caggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagguga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57651

<400> 43106
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auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

accgucacac acucaguuga gcugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag uugaagaauu gaaggcacuu 360

auuggaucag gggaaagggu agaaagguuu gagauguuuc ccaaaagcac augggcagga 420

guggacaccg acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau acccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aagaagcucu guaugguucu ggugaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu ugauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuacuuu accaauugag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcgggcuuca uugaaggagg auggacugga 1080

augauugaug gaugguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugagu ucucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaauuauuag uucuccuuga aaacgaaaga acacuggaca ugcaugaugc gaaugugaaa 1380

auucuguaug aaaaggucag aucacaacua cgagacaaug cuaaagaccu aggaaauggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaaugcauag agucugucaa gaauggcacu 1500

uauaacuauc ccaaauacca aagugaaagc agauuaaaca ggcaaacaau agaaucagug 1560

aagcuggaaa aucuuggugu guaucaaauu cuugcuauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cuuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

caaugcagga uauguauaua a 1701

<210> 43107
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57663

<400> 43107
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auuggauauc augcaaacaa uucgacaaca aagguagaua cgauacuuga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaagauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaac 240

ccccgaugcg gcauauugcu agcugaccaa agcuggucau acauaguaga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag cagaagaauu aaaggcacuu 360

auuggaucag gagaaagggu agaaagguuu gagauguuuc ccaaaagcac auggacagga 420

guggacaccg aaaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacucaag ucaucagaau acccaguaau cagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aaaaugcucu guaugguucu ggugaucgau auguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaagac cugcugugaa uggucagaga 720

ggcaggauug auuauuucug guccaucuua aaaccaggag aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uagcaaaggg 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa aagucuaagg cuugcuacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg guggacugga 1080

augauugaug gguggguacgg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauaaagaaa gcacucaaaa ggccauagac ggaaucacaa acaaggucaa uuccaucauu 1200

gauaaaauga auacacaauu ugaggcugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuccugg auguuuggac auacaacgcu 1320

gaacugcugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaagggucaa aucacaacug agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uauaacuauc ccaaguauca agcugagagu agauuaaaca aacagaaaau agaaucggua 1560

aaacuggagg aguuuggugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguccaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHJ57674

<400> 43108

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auuggauauc augcuaacaa uucaacaacg aagguagaua cuauacucga gaagaacgua 120

accgucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucgaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauauugcu cgcugaccaa agcuggucau acauagugga aaggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag uagaagaauu gaaggcacuu 360

auuggaucag gggaaagagu agaaagauuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca auaguggagu aucaagugcu uguccucuug gugaggguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacacacg acaucaggau auccaguaau uaaaggaacu 540

uacagaaaca cuggagauaa gucaguucuu uauuuuuggg gugugcacca uccuccugac 600

acaacugaac agaauguucu guacgguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaauug auuauuucug guccauuuug aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguacgca uacagauuug ucaacaaaga uagcaaagga 840

gccauauuca gauccaauuu accaaucgag aacugugaug ccacuugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuccag aaugugagcc cucuguggau uggagagugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagagacua gaggacuauu uggagcuauu gcaggcuuca uugaaggggg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauuccc aagguucagg auaugcagcc 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacga acaaggucaa uucuaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugagu uuucaaaccu ggaaagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaagggucag aucacaacug agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucagucaa aaaugguacc 1500

uauaacuauc ccaaguauca agcugagagu agauuaaaua gacagaaaau agaaucggua 1560

aaacuggagg aguuuggcgu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguauugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43109
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57686

<400> 43109
augauugcau ucauuguaau agcaauacug gcagcaaccg gaaaaucaga caagauaugc 60

auuggauacc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

acugucacac acucaguuga gcugcuggag aaccagaaag aaggaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccucgaugcg gcauacugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uugaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuu gagauguucc ccaaaaguac augggcagga 420

guggacacua acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagcau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuccuguc 600

gcaacugaac aagaagcccu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggaa uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugaag ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucac gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggccauagac gggauuacaa acaaggucaa cucuaucauu 1200

gauaaaauga acacgcaauu ugaggcugua ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcg 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaaa 1380

aaccuacaug aaaaggucag aucacaacua agagacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa gaaugguacu 1500

uaugacuauc ccaaguacca agcggagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uaggacugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57697

<400> 43110
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auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

accgucacac acucaguuga gcugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau uuuggggaau 240

ccccgaugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag uugaagaauu gaaggcacuu 360

auuggaucag gggaaagggu agaaagguuu gagauguuuc ccaagagcac augggcagga 420

guggacacca acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau acccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aagaagcucu guaugguucu ggugaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu ugauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaaggg 840

gccauauuca gaucuaauuu accaauugag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcgggcuuca uugaaggagg auggacugga 1080

augauugaug gaugguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugagu ucucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg augucuggac auacaacgcu 1320

gaacuauugg uucuucuuga aaacgagaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaagucaa aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguauca agcggagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43111
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57707

<400> 43111
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guuggauauc augcuaacaa uucaacaacg aagguagaua cuauacucga gaagaacgua 120

accgucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucgaacaagg ccccucucga ucuaagggau uguacccugg aggguuggau ccuggggaau 240

ccccgaugcg gcauauugcu cgcugaccaa aguuggucau acauagugga aaggccuaau 300

gcccgaaaug ggauuugcua uccugguaca uugaaugaag uagaagaauu gaaggcacuu 360

auuggaucag gggaaagagu agaaagauuu gagauguuuc cuaaaaguac auggacagga 420

guggacacca acaguggagu aucaagugcu uguccucuug gugaaggucc aucuuucuac 480

aggaaucuuc uauggauaau aaaacacacg acaucaggau acccaguaau uaaaggaacu 540

uacagaaaca cuggagauaa gucaguucuc uauuuuuggg gugugcacca uccuccugac 600

acaacugaac agaauguucu guacgguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaauug auuauuucug guccauuuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguacgca uacagauuug ucaacaaaga cagcaaagga 840

gccauauuca gauccaauuu accaaucgag aacugugaug ccacuugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuccag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaagcaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuauu uggggcuauu gcaggcuuca uugaaggggg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacga acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugagu uuucaaaccu ggaaagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuuuugg auguuuggac auacaacgcc 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacacgaugc aaaugugaag 1380

aaccuacaug aaagggucag aucgcaacug agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucagucaa aaaugguacc 1500

uauaacuauc ccaaguauca agcugagagc agauuaaaca aacagaaaau agaaucggua 1560

aaacuagagg aguuuggcgu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57719

<400> 43112
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auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau auuggggaau 240

ccccgaugcg gcauacugcu uucugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uugaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacua acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuuc 480

aggaaucucc uauggauaau aaaacuaaag ucaucaacau acccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuucuguc 600

acaacugaac aagaagcccu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaagac cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauucg ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugacg ccacaugcca gacuauugaa 900

ggagugauaa gaaccaacaa aacauuucaa aaugugagcc cucuguggau uggagagugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagau 1140

gauaaagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaacuauugg uucuucuuga gaacgaaaga acacuagacc uacaugaugc aaaugugaaa 1380

aaccuacaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugcgacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguacca agcggagagc agauuaaaca gacagaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

caaugcagga uauguauaua a 1701

<210> 43113
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57731

<400> 43113
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auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauacugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uugaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuc gagauguuuc ccaaaaguac augggcagga 420

guggacacug acaguggagu gucaagugcc uguccucuug guaacggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuccuguc 600

acaacugaac aagaagcccu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugacg ccacaugcca gacuacugaa 900

ggagugauac gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcacaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguacca aacggagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43114
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57743

<400> 43114
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auuggauauc augccaacaa uucaacaaca aaaguagaua cgauacucga gaagaacgua 120

accgucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ccuaagggau uguaccauag aggguuggau cuuggggaau 240

ccccgaugcg gcauacugcu ugcugaccaa agcuggucau acauagugga acggccugau 300

gcccgaaaug ggauuugcua uccugggaca uugaaugaag cagaagaauu gaaggcacuu 360

auuggaucag gggaaaaggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca gcaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuau 480

aggaaucuuc uauggauaau aaaacucaag uccucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca cccuccuguc 600

acaacugaac aaaaugcucu guaugguucu gguaauaggu auguuagaau gggaacugaa 660

agcaugaauu uugccagaag cccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aacgggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uagcaaagga 840

gccauauuca gaucuaauuu accaauugaa aacugugaug ccacaugcca gacuauugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacuggu 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugca ggucaugagu uuucaaaccu ggagaggagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcc 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucaa aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguauca aaaagagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43115
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57755

<400> 43115

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auuggauacc augccaacaa uucaacaaca aagguagaua cgauacuuga gaagaacgua 120

accgucacac acucaguuga gcugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ccuaagggau uguaccauag aggguuggau cuuggggaau 240

ccccgaugcg acauacugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag cagaagaauu gaaggcacuu 360

auuggaucag gggaaggggu agaaagauuu gagauguuuc ccaaaaguac auggguagga 420

guggacacca gcaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacucaag uccucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aaaaugcucu guaugguucu gguaauagau auguuagaau gggaacugaa 660

agcaugaauu uugccagaag cccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aacgggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaauaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugaug ccacauguca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacuggu 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacaa acaagguaaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugca ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucuag auguuuggac auacaacgcc 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucaa aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguauca aaaagagagu agguuaaaca gacagaaaau agaaucagua 1560

aaacuggaaa acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguugugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43116
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57767

<400> 43116
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auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

accgucacac acucaguuga gcugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag uugaagaauu gaaggcacuu 360

auuggaucag gggaaagggu agaaagguuu gagauguuuc ccaagagcac augggcagga 420

guggacacca acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau acccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aagaagcucu guaugguucu ggugaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uagcaaaggg 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa aagucuaagg cuugcuacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcgggcuuca uugaaggagg guggacugga 1080

augauugaug gugguacgg cuaccaucau gaaaguucuc aaggcucagg auaugcagcu 1140

gauaaagaaa gcacucaaaa ggccauagac ggaaucacaa acaaggucaa uuccaucauu 1200

gauaaaauga auacacaauu ugaggcugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auauaaugcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaauguaaag 1380

aaccugcaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa guguaacaau gaauguaugg agucugucaa aaaugggacc 1500

uaugacuauc ccaaauauca aaaggagagu agguuaaaua gacagaaaau agaaucggua 1560

aaacuggaga auuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau ccuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43117
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57779

<400> 43117
augauugcaa ucauaauaau agcaauacug guagcaacug gaaaaucaga caagauaugc 60

auuggauauc augccaacaa uucaacaaca aagguagaua cgauacucga gaagaacgua 120

accgucacac acucaguuga acugcuggag gaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ccuaagggau uguaccauag aggguuggau cuuggggaau 240

ccccgaugcg gcauacugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccugggaca uugaaugaag cagaagaauu gaaagcacuu 360

auuggaucag gggaaggggu agaaagguuu gagauguuuc ccaagaguac augggcagga 420

guggacacca acaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacucaag uccucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aaaaugcucu guaugguucu gguaauagau auguuagaau gggaacugaa 660

agcaugaauu uugccagaag cccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccaggag aaaccuugaa uguagaaucu 780

aacgggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacuggu 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacaa acaagguaaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugca ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcc 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaagucaa aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

uguuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguauca aaaagagagu agguuaaaca gacaaaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcauga uauguauaua a 1701

<210> 43118
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57791

<400> 43118
augauugcaa ucauaauaau agcgauacug guaacaaccg gaaaaucaga caagauaugc 60

auuggauauc augcuaacaa uucaacaaca aagguagaua caauacucga gaagaaugua 120

accgucacac acucaguuga acugcuggag aacaagaaag aagaaagauu cugcaaaauc 180

ucgaacaaag ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag uaaaagaauu gaaggcacuu 360

auuggucag gggaaagagu aaaaagauuu gagauguucc ccaaaaguac augggcagga 420

guggacacca acaguggagu aucaaguucu uguccucuug guaaugguc aucuuucuac 480

aggaaucuuc uauggauaau aaaacacacg acaucagggu acccaguaau uaaaggaacu 540

uacacaaaca cuggagauaa gucaguucuc uauuuuuggg guauacacca uccuccugac 600

acaacugaac aaaauguucu guaugguucu gguaaucgau acguuagaau gggaaccgaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaauug auuauuucug guccauuuua aaaccggggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguacgcg uacagauuug ucaacaaaga uagcaaagga 840

gccauauuca gaucuaauuu accaaucgag gacugugaug ccacuugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagagugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug ggcuaaggaa uguuccacaa 1020

auagaaacua gaggacuauu uggagcuauu gcaggcuuca uugaaggggg auggacugga 1080

augauugacg gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacga acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugagu uuucaaaccu ggaaagaagg 1260

auugacacac uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccugcaug aaagggucaa aucacagcug agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucagucaa aaaugguacc 1500

uauaacuauc ccaaguauca agcugagagu agauuaaaua aacagaagau agaaucggua 1560

aaacuggagg aguuuggcgu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug guucuuugga uguguucaaa ugguucaaug 1680

cagugcaggg uauguauaua a 1701

<210> 43119
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57815

<400> 43119
augauugcau ucaucauaau aacgauacug guaacaaccg gaaaaucaga caagauaugc 60

auuggauauc augccaacaa uucaacaaca aagguagaua caauacucga gaagaacgua 120

accgucacac acucaguaga acugcuggaa aaccagaaag aagagagauu cugcagaauc 180

ucaaacaagg ccccucucga ucuaaaggag uguacccuag aggguuggau cuuggggaau 240

ccccaaugcg auuuauuacu uggugaccaa agcuggucau acauagugga gcggcccaau 300

gcccgaaaug ggauuugcua cccuggaacg uugaaugagg uagaagaauu gagggcacuu 360

auuggaucag gggaaggagu agagagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca accguggugu aacaaguucu uguccuuuug guaugguuc aucuuucuac 480

aggaaccucc uauggauagu aaaacacacc acaucaucau auccaguaau uaaaggaacu 540

uucagaaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca uccauuugac 600

acgaaugagc aaaauguucu guaugguucu gguaaucgau acguuaggau gggaacugaa 660

agcaugaauu uugccagggg uccagaaguu gcggcaaggc cuguugugaa uggucagaga 720

ggcagaauug auuauuucug guccauuuua aaaccagggg aaaccuugaa cauagaaucu 780

aacgguaauu uaauagcccc uugguaugca uacagguuug ucaacaaaga uaguaaggga 840

gccauauuca gaucuaauuu accaaucgag gacugugaug ccacaugcca gacuauugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc ccuuguggau aggagaaugc 960

cccaaguaug uaaaaaguga gagucuaagg cuugcaacug gacuaaggaa uguaccacag 1020

auagaaacaa gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguacgg cuaucaucac gaaaauuccc aaggaucagg guaugcagcu 1140

gauagagaaa gcacucagaa ggcuauagac ggaauuacaa ccaaggucaa uuccauaauu 1200

gauaaaauga acacucaauu ugaggcugua ggucaugaau uuucaaaccu ggagagaagg 1260

auugacaauc uaaacaaaag auuggaagau ggauuucugg auguuuggac auacaaugcu 1320

gaauuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaucuacaug aaagggucag aucacaacua agggacaaug cuaaugaucu agggaaugga 1440

uguuucgaau uuuggcauaa augugacaau gaauguaugg agucugucaa aaaugguacc 1500

uauaacuauc ccaaguauca agcugaaagu agguuaaaca aacagagaau agagucggua 1560

aaacuggaga auuuugaugu guaucaaauc cucgccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau uuuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43120
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57827

<400> 43120
augauugcau ucauuguaau agcgauacug guagcaaccg gaaaaucaga caagauaugc 60

auuggauauc augcaaacaa uucaacaaca aagguagaua cgauacuuga gaaaaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ccuaagggau uguaccauag aagguuggau cuuggggaau 240

ccccgaugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaac 300

gcccggaaug ggauuugcua uccuggaaca uugaaugaag uagaagaauu gaaggcacuu 360

auuggaucag gagaaagagu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca acaguggagu aucaagugcu uguccucuug gaaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaaaccaag ucaucagaau auccaguaau uaaaggaacu 540

uucaacaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca uccuccuagc 600

agaaaugaac aaaauguucu guaugguucu ggugaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaagac cugcugugaa uggucagaga 720

ggcagaauug auuacuucug guccauuuua aaaccaggag aaaccuugaa uguagaaucu 780

aacgggaauu uaauagcccc uugguaugca uacagauuug ucaacaagga uaguagagga 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacugcugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gagggcuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaccau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacccaaaa ggcuauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gacaaaauga acacacaauu ugaggcugua ggucaugagu uuucaaaccu ggaaagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaagggucaa aucacaacua agggacaaug cuaaugaucu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuacc ccaaguauca aaaagagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaga auuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43121
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57850

<400> 43121
augauugcau ucauuguaau agcaauacug gcaacaaccg gaaaaucaga caagauaugc 60

auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

acugucacac acucaguuga acuacuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaaag ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccucgaugcg gcauacugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uuaaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacug acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuccuguc 600

acaacugaac aagaagccuu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggac uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugacg ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua ggggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gugguguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcugcu 1140

gauagagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcg 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaauggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg aguccgucaa gaaugguacc 1500

uaugacuauc ccaaguacca agcggagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaaa acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43122
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57862

<400> 43122
augauugcau ucauuguaau agcaauacug gcagcaaccg gaaaaucaga caagauaugc 60

auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauacugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uugaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagauuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcauca uccuccuguc 600

acaacugaac aagaagcccu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugacg ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacucuu uggagcuauu gcagguuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gacagagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcg 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucag gucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacu 1500

uaugacuauc ccaaguacca agcggagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43123
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57873

<400> 43123
augauugcau ucauuguaau agcaacacug guagcaaccg gaaaaucaga caagauaugc 60

augggauauc augcaaacaa uucgacaaca aagguagaua cgauacuuga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaagauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aagguuggau auuggggaac 240

ccccgaugcg gcauauugcu agcugaccaa agcuggucau acauaguaga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag cagaagaauu aaaggcacuu 360

auuggaucag gagaaagggu agaaagguuu gagauguuuc ccaaaagcac auggacagga 420

guggacaccg aaaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacucaag ucaucagaau auccaguaau cagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aaaaugcucu guaugguucu ggugaucgau auguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaagac cugcugugaa uggucagaga 720

ggcagaauug auuauuucug guccaucuua acaccugggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uagcaaaggg 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa aagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg guggacugga 1080

augauugaug gaugguacgg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauaaagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga auacacaauu ugaggcugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auauaaugcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaauguaaag 1380

aaccugcaug aaaaggucag gucacaacua agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugggacc 1500

uaugacuauc ccaaauauca aaaggagagu agguuaaaua gacagaaaau agaaucggua 1560

aaacuggaga auuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau ccuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cacugcagga uauguauaua a 1701

<210> 43124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57885

<400> 43124
augauugcau ucauuguaau ggcaauacug gcagcaaccg gaaaaucaga caagauaugc 60

auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga aaagaacgua 120

acugucacac acucaguuga acuacuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggguaau 240

ccccgaugcg gcauacugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uugaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacug acaguggagu gucaagugca uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacgaaag ucaucagcau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuccuguc 600

acaacugaac aagaagcccu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggaa uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uauagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag gacugugacg ccucaugcca gacuacagaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uagacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcg 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguacca agcggagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43125
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57897

<400> 43125
augauugcau ucauuguaau agcaauacug gcagcaaccg gaaaaucaga caagauaugc 60

auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga aaagaacgua 120

acugucacac acucaguuga acuacuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggguaau 240

ccccgaugcg gcauacugcu ugcugaucaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uugaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacug acaguggagu gucaagugca uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacgaaag ucaucagcau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuccuguc 600

acaacugaac aagaagcccu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggaa uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uauagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag gacugugacg ccucaugcca gacuacagaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggccauagac ggaauuacaa acaaagucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugug ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcg 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg aguccgucaa aaaugguacc 1500

uaugacuauc ccaaguauca agcggagagu agguuaaaca gacaaaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHJ57908

<400> 43126

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auuggauauc augccaacaa uucaacaaca aagguagaua cgauacuuga aaagaaugua 120

accgucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaaag ccccucucga ucuaagggau uguaccguag aggguuggau cuuggggaau 240

ccccgaugcg gcauacugau ugcugaccaa agcuggucgu acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag cagaagaauu gaaggcacuu 360

auuggaucgg gggaaggggu agaaagauuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca gcaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacucaag ucaucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaguucuc uauuuuuggg gugugcacca uccuccuguc 600

acaacugaac aagaugcucu guaugguucu gguaaucgau auguuagaau gggaacugaa 660

agcaugaauu uugccagaag cccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug gucagucuua aaaccagggg aaaccuugaa uguagaaucu 780

aacggaaauu uaauagcccc uugguaugca uacagauuug uuaacaaaga uaauaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugca ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacu uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcc 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucaa aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaaugcaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguauca aaaagagagu agguuaaaca gacagagaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguugugg uagggcugau cauggcaaug ggucuuugga uguguucaaa uggcucaaug 1680

cagugcauga uauguauaua a 1701

<210> 43127
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57920

<400> 43127
augauugcaa ucauaauaau agcgauacug guagcaaccg gaaaaucaga caagauaugc 60

auuggauauc augcaaacaa uucaacaaca aagguagaua cgauacuuga gaaaaacgua 120

accgucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggac ugcaccauag aagguuggau cuuggggaau 240

cccuggugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccggaaug ggauuugcua ucccggaaca uugaaugaag uagaagaauu gaaggcacuu 360

auuggaucag gagaaagggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca acaguggagu aucaagugcu uguccucuug gaaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaaaccaag ucaucagaau auccaguaau uaaaggaacu 540

uucaacaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca uccuccuagc 600

agaaaugaac aaaauguucu guaugguucu ggugaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaagac cugcugugaa uggucagaga 720

ggcagaauug auuauuucug guccauuuua aaaccagggg aaaccuugaa uguagaaucu 780

aacgggaauu uaauagcccc uugguaugca uacagauuug ucaacaagga uaguagagga 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacugcugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gaguuuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gagggcuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaccau gaaaauucuc aaggcucagg guaugcagcu 1140

gauagagaaa gcacccaaaa ggcuacagac ggaauuacaa acaaggucaa uuccaucauu 1200

gacaaaauga acacacaauu ugaggcugua ggucaugagu uuucaaaccu ggaaagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaagggucaa aucacaacua agggacaaug cuaaugauuu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugauacc 1500

uaugacuacc ccaaguauca aaaggagagu agguuaaaca gacagaaaau agaaucggua 1560

agacuggaga auuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43128
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57932

<400> 43128
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auuggauauc augccaacaa uucaacaaca aagguagaua caauacucga gaagaacgua 120

accgucacac acucaguaga acugcuggaa aaccagaaag aagagagauu cugcagaauc 180

ucaaacaaag ccccucucga ucuaaaggag uguacccuag aggguuggau cuuggggaau 240

ccccaaugcg auuuauuacu uggugaccaa agcuggucau acauagugga gcggcccaau 300

gcccgaaaug ggauuugcua cccuggaacg uugaaugagg uagaagaauu aagggcacuu 360

auuggaucag gggaaggagu agagagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca accguggugu aacaaguucu uguccuuuug guaugguuc aucuuucuac 480

aggaaccucc uauggauagu aaaacacacc acaucaucau auccaguaau uaaaggaacu 540

uucagaaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca uccauuugac 600

acgaaugagc aaaauguucu guaugguucu gguaaucgau acguuaggau gggaacugaa 660

agcaugaauu uugccagggg uccagaaguu gcggcaaggc cuguugugaa uggucagaga 720

ggcagaauug auuauuucug guccauuuua aaaccagggg aaaccuugaa cauagaaucu 780

aacgguaauu uaauagcccc uugguaugca uacagguuug ucaacaaaga uaguaaggga 840

gccauauuca gaucuaauuu accaaucgag gacugugaug ccacaugcca gacuauugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc ccuuguggau aggagaaugc 960

cccaaguaug uaaaaaguga gagucuaagg cuugcaacug gacuaaggaa uguaccacag 1020

auagaaacaa gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gugguacgg cuaucaucac gaaaauuccc aaggaucagg guaugcagcu 1140

gauagagaaa gcacucagaa ggcuauagac ggaauuacaa ccaaggucaa uuccauaauu 1200

gauaaaauga acacucaauu ugaggcugua ggucaugaau uuucaaaccu ggagagaagg 1260

auugacaauc uaaacaaaag auuggaagau ggauuucugg auguuuggac auacaaugcu 1320

gaauuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaucuacaug aaagggucag aucacaacua agggacaaug cuaaugaucu agggaaugga 1440

uguuucgaau uuuggcauaa augugacaau gaauguaugg agucugucag aaaugguacc 1500

uauaacuauc ccaaguauca agcugaaagu agguuaaaca aacagagaau agagucggua 1560

aaacuggaga auuuugaugu guaucaaauc cucgccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau uuuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43129
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57943

<400> 43129
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auuggauauc augcaaacaa uucgacaaca aagguagaua cgauacuuga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaagauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaac 240

ccccgaugcg gcauauugcu agcugaccaa agcuggucau acauaguaga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag cagaagaauu aaaggcacuu 360

auuggaucag gagaaagggu agaaagguuu gagauguuuc ccaaaagcac auggacagga 420

guggacaccg aaaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacucaag ucaucagaau acccaguaau cagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aaaaugcucu guaugguucu ggugaucgau auguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaagac cugcugugaa uggucagaga 720

ggcaggauug auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uagcaaaggg 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa aagucuaagg cuugcuacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg guggacugga 1080

augauugaug gguggguacgg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauaaagaaa gcacucaaaa ggccauagac ggaaucacaa acaaggucaa uuccaucauu 1200

gauaaaauga auacacaauu ugagacugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auauaaugcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaauguaaag 1380

aaccugcaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa guguaacaau gaauguaugg agucugucaa aaaugggacc 1500

uaugacuauc ccaaauauca aaaggagagu agguuaaaua gacagaaaau agaaucggua 1560

aaacuggaga auuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau ccuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43130
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57954

<400> 43130
augauugcau ucauuguaau agcaauacug gcagcaaccg gaaaaucaga caagauaugc 60

auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga aaagaacgua 120

acugucacac acucaguuga acuacuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauccugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua cccuggaaua uugaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacua acagugggguu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacaaaag ucaucagcau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuccuguc 600

acaacugaac aagaagcccu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggaa uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugacg ccacaugcca gacuacagaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc ugaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcg 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguacca agcggagagu agguuaaaca gacagaaaau agaaucagua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau aauggcaaug ggucucugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43131
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57965

<400> 43131
augauugcau ucaucauaau aacgauacug guaacaaccg gaaagucaga caagauaugc 60

auuggauauc augccaacaa uucaacaaca aagguagaua caauacuuga gaagaacgua 120

accgucacac acucggucga acugcuggaa aaccagaagg aagagagauu cugcaaaauu 180

ucaaacaagg ccccucucga ucuaaaggag uguacccuag aggguuggau cuuggggaau 240

ccccaaugcg accuauuacu uggugaccaa agcuggucau acauagugga acgaccuaau 300

gcccgaaaug ggauuugcua cccuggaaca uugaaugaag uagaagaauu gaaggcacuu 360

auuggaucag gagaaagagu agagagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca acaguggagu aacaaguucu uguucuuuug guaugguuc aucuuucuac 480

aggaaucucc uauggauaau aaaacacacc acaucaucau auccaguaau uaaaggaacu 540

uucagaaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca cccaauugac 600

acaacugagc aaaauguucu guaugguucu gguaaucgau acguuaggau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaagac cuguugugaa uggucagaga 720

ggcagaauug auuauuucug guccauuuua aaaccagggg aaaccuugaa uauagaaucu 780

aacgggaauu uaauagcccc uugguaugca uacagguuug ucaacaaaga uagcaaggga 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuauugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc ccuuauggau aggagaaugc 960

cccaaguaug ugaaaaguga gagucuaagg cuugcaacug gacuaaggaa ugucccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaucaucau gaaaauucuc aaggaucagg auaugcagcu 1140

gauagagaaa gcacucaaag ggcuauagac ggaauuacaa ccaaggucaa uuccauaauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaagag aauggaagau ggauuucugg auguuuggac auacaaugcu 1320

gaauuguugg uucuucuaga aaacgagaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug agagggucag aucacaacua agggacaaug cuaaugaugg agggaacgga 1440

uguuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa gaaugguacc 1500

uaugacuauc ccaaguauca agcugagagu agaucaaaca gacagagaau agaaucggua 1560

aaacuggaga auuuugacgu guaucaaaua cuugccauuu auaguacggu aucgagcagu 1620

cuaguggugg uauggcugau ucuggcaaug ggucuuugga ugugugcaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43132
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57977

<400> 43132
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auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

accgucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucgaacaagg ccccucucga ucuaagggau uguaccauag aggguuggau cuuggggaau 240

ccccgaugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag uugaagaauu gaaggcacuu 360

auuggaucag gggaaagggu agaaagguuu gagauguuuc ccaagagcac augggcagga 420

guggacacca acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau acccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aagaagcucu guaugguucu ggugaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uagcaaagga 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa aagucuaagg cuugcuacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg guggacugga 1080

augauugaug gguggguacgg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauaaagaaa gcacucaaaa ggccauagac ggaaucacaa acaaggucaa uuccaucauu 1200

gauaaaauga auacacaauu ugaggcugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auauaaugcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaauguaaag 1380

aaccugcaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa guguaacaau gaauguaugg agucugucaa aaaugggacc 1500

uaugacuauc ccaaauauca aaaggagagu agguuaaaua gacagaaaau agagucggua 1560

aaacuggaga auuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau ccuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43133
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ57989

<400> 43133

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auuggauauc augcuaacaa uucaacaaca aagguagaua caauacucga gaagaacgua 120

accgucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucgaacaagg ccccucucga ucuaagagau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag uagaagaauu gaaggcacuu 360

auuggaucag gggaaagggu agaaagauuu gagauguuuc ccaaaaguac augggcaaga 420

guggacaccg acaggggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauagu aaaacacacg acaucagaau auccagugau uaaaggaacu 540

uacacaaaca cuggagauaa gucaguucuc uauuuuuggg guguucacca uccuccugac 600

acaacugaac aaaauguucu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaacu uugccaggag uccagaaauu gcugcaaggc cugcagugaa uggucagaga 720

ggcagaauug auuauuucug guccauucua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguacgca uacagguuug ucaacaaaga uagcaaagga 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccaccugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cuauguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuauu uggagcuauu gcaggcuuca uugaaggggg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacga acaaggucaa uuccauuauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugagu uuucaaaccu ggaaagaaga 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugauuc aaaugugaag 1380

aaccuacaug aaagggucaa aucacaacug agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacu 1500

uauaacuauc ccaaguauca agcugagagu agauuaaaca gacagaaaau agaaucggua 1560

aaacuggagg aguuuggcgu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43134
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ58001

<400> 43134
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auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauauugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uugaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuc gagauguuuc ccaaaaguac augggcagga 420

guggacacug acaguggagu gucaagugcc uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuccuguc 600

acaacugaac aagaagcccu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugacg ccacaugcca gacuacugaa 900

ggagugauac gaaccaacaa aacauuucag aaugugagcc cuauguggau uggagaaugc 960

cccaaguaug uaaagaguaa gagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuauu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gugguguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguauca aacggagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43135
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ58013

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accgucacac acucggucga acugcuggag aaccaaaaag aagaaagguu cugcaaaauc 180

ucaagcaagg ccccucucga ucuaagggau uguucccuag aggguuggau cuuggggaau 240

ccccgaugcg gcauauugcu cgcugaccaa agcuggucau acauagugga aaggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag uagaagaauu gaaggcacuu 360

auuggaucag gggaaagagu agaaagauuu gagauguuuc ccaaaaguac augggcaggg 420

guggacacca acaguggagu aucaagugcu uguccucuug gugaaggucc aucuuucuac 480

aggaaucuuc uauggauaau aaaacgcacg acaucagaau auccaguaau uaaaggaacu 540

uacagaaaca cuggagauaa gucaguucuc uauuuuuggg gugugcacca uccuccugac 600

acaacugaac agaauguucu guacgguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaaggc cugcugugaa uggucaaaga 720

ggcagaauug auuauuucug guccauuuua aaaccagggg aaaccuugga uguagaaucu 780

aaugggaauu uaauagcccc uugguacgca uacagauuug ucaacaaaga gagcaaagga 840

gccauauuca gauccaauuu accaaucgag aacugugaug ccacuugcca gacuacugaa 900

ggagugauaa ggaccaacaa aacauuccag aaugugagcc cucuguggau uggagagugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuauu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaucaucau gaaaauucuc agggcucagg auaugcagcu 1140

gauaaagaaa gcacccagaa ggcuauagac ggaauuacga acaaggucaa uuccaucauu 1200

gauaaaauga auacacaauu ugaggcugua ggucaugaau uuucaacuuu agaaagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuuuugg auguuuggac auacaacgcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacacgaugc aaaugugaag 1380

aaccuacaug aaagagucag aucacaacug agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucagucaa aaaugguacc 1500

uauaacuauc ccaaguauca agcugagagu agauuaaaca aacagaaaau agaaucggua 1560

aaacuggagg aguuuggcgu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uaggacugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

caaugcagga uauguauaua a 1701

<210> 43136
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43136
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auuggauauc augccaacaa uucgacaaca aaaguagaua cgauacucga aaagaacgua 120

accgucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaaag ccccucucga ucuaagggau uguaccauag aagguuggau cuuggggaau 240

ccccgaugcg gcauacuucu ugccgaucaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaacg cugaaugaag cagaagaauu gaaggcacuu 360

auuggaucag gggaaggggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca acaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

agaaaucuuc uauggauaau aaaacucaag ucaucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aaaaugaucu guaugguucu gguaaucgau auguuaggau gggguacugaa 660

agcaugaauu uugccagaaa cccagagauu gcauuaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccauuuua aaaccagggg aaaccuugaa uguagaaucu 780

aacgggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuagcuu accaauugaa aacugugacg ccacaugcca gacugcugaa 900

ggagugauaa gaacaaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa gagucuaagg cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augguugaug gaugguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggcuauagac ggaauuacga auaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugug gaucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc ugaacaaaag aauggaagau ggauuuuugg auguuuggac auacaacgcc 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagauc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucaa aucacaacua agggauaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uauaacuauc ccaaauauca aaaagagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuagaga acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cugguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43137
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ58037

<400> 43137
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auuggauauc augccaacaa uucaacaaca aagguagaua caauacucga gaagaacgua 120

accgucacac acucggucga acugcuggaa aaccagaagg aagagagauu cugcaaaauu 180

ucaaacaagg ccccucucga ucuaaaggag uguacccuag aggguuggau cuuggggaac 240

ccccaaugcg accuauuacu uggugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua cccuggaaca uugaaugaag uagaagaauu gaaggcacuu 360

auuggaucag gggaaagggu agagagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacca acaguggagu aacaaggucu uguccuuuug guaugguuc aucuuucuac 480

aggaaucucc uauggauaau aaaacacacc acaucaucau auccaguaau uaaaggaacu 540

uucagaaaca cuggagacaa gucaguucuc uauuuuuggg guguacacca uccaauugac 600

acaacugagc aaaauguucu guaugguucu gguaaucgau acguuaggau gggaacugaa 660

agcaugaauu uugccaggag uccagaaauu gcggcaagac cuguugugaa uggucagaga 720

ggcagaauug auuauuucug guccauuuua aaaccagggg aaaccuugaa uauagaaucu 780

aacgggaauu uaauagcccc uugguaugca uacagguuug ucaacaaaga uaguaaggga 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuauugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc ccuuguggau aggagaaugc 960

cccaaguaug ugaaaaguga gagucuaagg cuugcaacug gacuaaggaa uguccccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gaugguaugg cuaucaucau gaaaauucuc aaggaucagg guaugcagcu 1140

gauagagaaa gcacucaaag ggcuauagac ggaauuacaa ccaaggucaa uuccauaauu 1200

gauaaaauga acacacaauu ugaggcugua ggucaugaau uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaaugcu 1320

gaguuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaagggucaa aucacaauua agggacaaug cuaaugaucu agggaacgga 1440

uguuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa aaaugguacc 1500

uaugacuauc ccaaguauca agcugagagu agguuaaaca aacagagaau agaaucggua 1560

aaacuggaga auuuugacgu guaucaaaua cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau uauggcaauu ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43138
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ58049

<400> 43138
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auuggauauc augccaacaa uucaacaaca aagguagaua cuauacucga gaagaacgua 120

acugucacac acucaguuga acuacuggag aaccagaaag aagaaagauu cugcaaaauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaau 240

ccucgaugcg gcauacugcu ugcugaccaa agcuggucau acauagugga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaua uuaaaugaag cugaagaauu gaaggcacuu 360

aucggaucag gggaaagggu agaaagguuu gagauguuuc ccaaaaguac augggcagga 420

guggacacug acaguggagu gucaagugcu uguccucuug guaauggccc aucuuucuac 480

aggaaucuuc uauggauaau aaaacuaaag ucaucagaau auccaguaau uagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg gugugcacca uccuccuguc 600

acaacugaac aagaagccuu guaugguucu gguaaucgau acguuagaau gggaacugaa 660

agcaugaauu uugccaggac uccagaaauu gcggcaaggc cugcugugaa uggucagaga 720

ggcagaaucg auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uaguaaagga 840

gccauauuca gaucuaauuu accaauugag aacugugacg ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaagaguaa aagucuaaga cuugcaacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg auggacugga 1080

augauugaug gguggguaugg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauagagaaa gcacucaaaa ggccauagac ggaauuacaa acaaggucaa uuccaucauu 1200

gauaaaauga acacacaauu ugaggcugua ggccaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auacaacgcg 1320

gaacuauugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaaugugaag 1380

aaccuacaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacggg 1440

ugcuuugaau uuuggcauaa gugugacaau gaauguaugg agucugucaa gaaugguacc 1500

uaugacuauc ccaaguacca agcggagagu agguuaaaca gacagaaaau agaaucggua 1560

aaacuggaaa acuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau cauggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43139
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ58061

<400> 43139
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auuggauauc augcaaacaa uucgacaaca aagguagaua cgauacuuga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaagauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaac 240

ccccgaugcg gcauauugcu agcugaccaa agcuggucau acauaguaga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag cagaagaauu aaaggcacuu 360

auuggaucag gagaaagggu agaaagguuu gagauguuuc ccaaaagcac auggacagga 420

guggacaccg aaaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacucaag ucaucagaau acccaguaau cagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aaaaugcucu guaugguucu ggugaucgau auguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaagac cugcugugaa uggucagaga 720

ggcaggauug auuauuucug guccaucuua aaaccaggag aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uagcaaaggg 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa aagucuaagg cuugcuacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg guggacugga 1080

augauugaug gguggguacgg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauaaagaaa gcacucaaaa ggccauagac ggaaucacaa acaaggucaa uuccaucauu 1200

gauaaaauga auacacaauu ugaggcugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auauaaugcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaauguaaag 1380

aaccugcaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa guguaacaau gaauguaugg agucugucaa aaaugggacc 1500

uaugacuauc ccaaauauca aaaggagagu agguuaaaua gacagaaaau agagucggua 1560

aaacuggaga auuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau ccuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43140
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHJ58084

<400> 43140
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auuggauauc augcaaacaa uucgacaaca aagguagaua cgauacuuga gaagaacgua 120

acugucacac acucaguuga acugcuggag aaccagaaag aagaaagauu cugcaagauc 180

ucaaacaagg ccccucucga ucuaagggau uguacccuag aggguuggau cuuggggaac 240

ccccgaugcg gcauauugcu agcugaccaa agcuggucau acauaguaga acggccuaau 300

gcccgaaaug ggauuugcua uccuggaaca uugaaugaag cagaagaauu aaaggcacuu 360

auuggaucag gagaaagggu agaaagguuu gagauguuuc ccaaaagcac auggacagga 420

gugaacaccg aaaguggagu aucaagugcu uguccucuug guaaugguсc aucuuucuac 480

aggaaucuuc uauggauaau aaaacucaag ucaucagaau acccaguaau cagaggaacu 540

uucaacaaca cuggagacaa gucaauucuc uauuuuuggg guguacacca uccuccuguc 600

acaacugaac aaaaugcucu guaugguucu ggugaucgau auguuagaau gggaacugaa 660

agcaugaauu uugccaggag cccagaaauu gcggcaagac cugcugugaa uggucagaga 720

ggcaggauug auuauuucug guccaucuua aaaccagggg aaaccuugaa uguagaaucu 780

aaugggaauu uaauagcccc uugguaugca uacagauuug ucaacaaaga uagcaaaggg 840

gccauauuca gaucuaauuu accaaucgag aacugugaug ccacaugcca gacuacugaa 900

ggagugauaa gaaccaacaa aacauuucag aaugugagcc cucuguggau uggagaaugc 960

cccaaguaug uaaaaaguaa aagucuaagg cuugcuacug gacuaaggaa uguuccacaa 1020

auagaaacua gaggacuuuu uggagcuauu gcaggcuuca uugaaggagg guggacugga 1080

augauugaug gguggguacgg cuaccaucau gaaaauucuc aaggcucagg auaugcagcu 1140

gauaaagaaa gcacucaaaa ggccauagac ggaaucacaa acaaggucaa uuccaucauu 1200

gauaaaauga auacacaauu ugaggcugua ggucaugagu uuucaaaccu ggagagaagg 1260

auugacaacc uaaacaaaag aauggaagau ggauuucugg auguuuggac auauaaugcu 1320

gaacuguugg uucuucuuga aaacgaaaga acacuagacc uacaugaugc aaauguaaag 1380

aaccugcaug aaaaggucag aucacaacua agggacaaug cuaaugaccu agggaacgga 1440

ugcuuugaau uuuggcauaa guguaacaau gaauguaugg agucugucaa aaaugggacc 1500

uaugacuauc ccaaauauca aaaggagagu agguuaaaua gacagaaaau agaaucggua 1560

aaacuggaga auuuugaugu guaucaaauc cuugccauuu auaguacggu aucgagcagu 1620

cuaguuuugg uagggcugau ccuggcaaug ggucuuugga uguguucaaa ugguucaaug 1680

cagugcagga uauguauaua a 1701

<210> 43141
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80708

<400> 43141
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43142
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80718

<400> 43142
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43143
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80729

<400> 43143
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu gaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auguacaucc gaucacaauu 960

ggaaaauguc caaaauaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccgucua uucaaucuag aggccuauuu ggggccauug ccgguuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacagaau gccauugacg agauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcaguag guaaagaguu caaccaccug 1260

gaaaaaagaa uagagaauuu aaauaaaaag guugaugaug guuuccuaga cauuuggacu 1320

uacaaugccg aacuguuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuauauga aaagguaaga agccaauuaa aaaacaaugc caaggaaauu 1440

ggaaacgguu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaagaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca guuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 43144
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL80740

<400> 43144

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcguuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43145
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80751

<400> 43145
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaauacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacacc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43146
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80762

<400> 43146
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcugcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggauacua guagagccgg gagacaaaau aacauucgaa 780

gcaaccggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca ucucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaagacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43147
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80784

<400> 43147
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gacuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80795

<400> 43148
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc ggacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43149
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80817

<400> 43149
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aacuguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaagcaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80828

<400> 43150
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aacuguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaagcaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43151
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80839

<400> 43151

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gacuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gcucagcaga 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguagggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80861

<400> 43152
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaaggaagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagggaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43153
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80872

<400> 43153
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaaugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43154
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80883

<400> 43154
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 43155
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80894

<400> 43155
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc ggacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug aucaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43156
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80905

<400> 43156
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguguuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga accuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43157
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80916

<400> 43157
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucaguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80927

<400> 43158
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43159
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80946

<400> 43159
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43160
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL80958

<400> 43160
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43161
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81001

<400> 43161
augaagacua ucauugcuuu gagcuacauu cuaugucuga uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL81013

<400> 43162

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg auggcuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaauggg 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43163
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81025

<400> 43163
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43164
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81037

<400> 43164
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuauuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43165
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81049

<400> 43165
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43166
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81061

<400> 43166
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43167
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81072

<400> 43167
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43168
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81083

<400> 43168
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuucugcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43169
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81095

<400> 43169

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43170
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81118

<400> 43170
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43171
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81129

<400> 43171
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81141

<400> 43172
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuauuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43173
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81153

<400> 43173
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81165

<400> 43174
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua acgcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcga caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43175
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81177

<400> 43175
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua acgcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcga caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43176
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81189

<400> 43176
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43177
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81212

<400> 43177
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaaaaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43178
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81224

<400> 43178
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

accacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaac ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucaguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43179
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81235

<400> 43179
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43180
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL81247

<400> 43180

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43181
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81259

<400> 43181
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43182
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81271

<400> 43182
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43183
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81283

<400> 43183
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43184
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81295

<400> 43184
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43185
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81307

<400> 43185
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagau aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43186
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81329

<400> 43186
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43187
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81340

<400> 43187

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaauuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaagcucug cuugcauaag gggaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca agcugcaauc ccgaauaucg gaucuagacc cagaguaagg 720

aacauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca aacgguuuca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43188
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81352

<400> 43188
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43189
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81364

<400> 43189
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggagcgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43190
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81386

<400> 43190
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aguaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43191
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81397

<400> 43191
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucuga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43192
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81409

<400> 43192
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaaaaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43193
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81419

<400> 43193
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gacuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguauaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43194
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL81430

<400> 43194
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauac gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gagcuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 43195
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL88951

<400> 43195
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43196
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89030

<400> 43196
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuucug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43197
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89042

<400> 43197
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu gguggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43198
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL89054

<400> 43198

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaguuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cuuagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43199
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89066

<400> 43199
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug ucgaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguua acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43200
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89078

<400> 43200
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggagaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag aagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacccca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43201
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89090

<400> 43201
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccuuaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggac 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43202
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89102

<400> 43202
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu aaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43203
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89114

<400> 43203
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43204
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89126

<400> 43204
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43205
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89138

<400> 43205

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaau caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43206
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89150

<400> 43206
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugguguuc aucauguggg ccugccagaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43207
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89162

<400> 43207
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu aggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaacc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43208
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89174

<400> 43208
augaagacua ucauugcuuu gagcuacacu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43209
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89210

<400> 43209
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga guugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acucacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccggguga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu auugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43210
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89222

<400> 43210
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43211
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89234

<400> 43211
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcccaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caagccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43212
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89246

<400> 43212
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguggc aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43213
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89258

<400> 43213
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auaguaaaaa caaucacgaa ugaccaaauu gaaguuacua augccacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua ccaagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43214
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89270

<400> 43214
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43215
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89282

<400> 43215
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43216
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL89294

<400> 43216

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43217
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89306

<400> 43217
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43218
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89318

<400> 43218
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugguagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43219
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89330

<400> 43219
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43220
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL89342

<400> 43220
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43221
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43221
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga guugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccggguga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucagaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu auugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43222
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89366

<400> 43222
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac aguaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugguagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

auugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaauauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43223
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89378

<400> 43223

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43224
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89390

<400> 43224
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43225
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89402

<400> 43225
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43226
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89414

<400> 43226
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuggaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucuug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gauccagacc uagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43227
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89426

<400> 43227
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuuu 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugguagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43228
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89438

<400> 43228
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcuuuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aaucgcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

uguccccgau auguuaaaca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43229
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89450

<400> 43229
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcuuuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aaucgcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccgau auguuaaaca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaaguacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43230
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89462

<400> 43230
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43231
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89474

<400> 43231
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcgggcu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagagggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43232
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89486

<400> 43232
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43233
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89498

<400> 43233
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuuugcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugguagca uucccaauga caaaccauuu caaaauguaa acagaaucac auauggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43234
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL89510

<400> 43234

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuuugcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugguagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43235
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89522

<400> 43235
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuuugcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugguagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43236
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89534

<400> 43236
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagacu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc uagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugguagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

auugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43237
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89546

<400> 43237
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu uacuauggcu gacggggaag aaugguuugu auccaaaucu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaagugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaagguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gagcccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agagaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43238
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89558

<400> 43238
augaaaguaa aacuacuggu ucuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcugau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43239
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89570

<400> 43239
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucaa aaugagcaag gaucugggua ugcugcugau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43240
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89582

<400> 43240
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43241
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89594

<400> 43241

augaaaguaa aacuacuugu ucuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43242
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89606

<400> 43242
augaaaguaa aacuacuugu ucuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43243
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89618

<400> 43243
augaaaguaa aacuacuggu ucuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucacuu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcugau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43244
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89630

<400> 43244
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacauccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43245
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89642

<400> 43245
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaauc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guucuaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43246
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89654

<400> 43246
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggga uagccccacu acaauugggu aauugcagcg uugccggaug gauuuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg aauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagccuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43247
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89666

<400> 43247
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaauc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuauu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugccg aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guucuaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43248
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89678

<400> 43248
augaaaguaa aacuacuugu ucuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacauccag ucacaauagg ggagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacagga agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43249
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89690

<400> 43249
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uguauaggcu accaugccaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

gauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaacu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagagguuu uggaucagga 840

aucaucaauu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaagaaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuuauagaca uuuggacaua caaugcagag 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 43250
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89702

<400> 43250
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg aauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagccuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacagggc uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43251
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<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL89714

<400> 43251
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgcug acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcauuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

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<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL89726

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uguauaggcu accaugccaa caacucgacc gacacugucg acacaguacu ugagaagaau 120

gugacaguaa cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacgga auuacaaaca aggugaauuc cguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43253
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL89750

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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugga ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcugau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43254
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL89762

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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuauuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuacccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43255
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89774

<400> 43255
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggaccguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcagaucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca auuacuacug gacucuacug gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaccag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc ugugauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacgua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43256
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89786

<400> 43256
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg aauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagccuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacagggc uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43257
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89798

<400> 43257
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggaccguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcagaucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuagc 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca auuacuacug gacucuacug gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggguug gacuggaaug 1080

guagaugguu gguaugguua ucaccaccag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc ugugauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuggaca uuuggacgua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccuu 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43258
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89810

<400> 43258
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccagga uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aaugggugaa ugugaugcgg agugucaaac accucaggga 900

gcuauaaaca guagucuucc uuuccagaau guacauccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaagagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa auaaaaaggu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43259
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89822

<400> 43259

augaaaguga aacuacuggu ucuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggaccguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcaaaucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac uccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucuacug gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaccag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc ugugauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaaagu ugaugaugga uuucuagaca uuuggacgua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43260
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89834

<400> 43260
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agagacacca 300

aauccugaga auggaacaug uuacccaggg aauuucgccg acuaugagga gcugagagag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu auccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga aaugucaaac accucaggga 900

gcuauaaaca gcagccuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg agacgggugu 1440

uuugaauucu aucacaaaug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uugaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauuuug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43261
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89846

<400> 43261
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uguauaggcu accaugccaa caacucgacc gacacuguug acacaguacu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaggaccguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gaaucauggu ccuacauugu agaaacacca 300

aauccugaga auggaacaug uuacccaggg uauuucgccg acuaugagga gcugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccc auaacgggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacgggaaag aaugguuugu acccaaaccu gagcagaucc 540

uaugcaaaca acaaagagaa agaaguccuu guacuguggg guguucauca cccgccuaac 600

auaggggacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaggugag agaucaggaa 720

ggaagaauca auuacuacug gacucuacug gaacccgggg auacaauaau auuugaggca 780

aaugggaauc uaauagcgcc aagguuugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaugcga agugucaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaagaaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaccag aaugagcaag gaucugggua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaauuc ugugauugag 1200

aaaaugaaca cucaauucac agcugugggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaacuuaa auaaaaaagu ugaugauggg uuucuagaca uuuggacgua uaacgcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuggacuucc augacuccaa cgugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaacgggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43262
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89858

<400> 43262
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43263
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89870

<400> 43263
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43264
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89882

<400> 43264
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cgggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucugau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uauggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggcua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 43265
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89894

<400> 43265
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43266
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89906

<400> 43266
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuacgcuca aaaacuuccc 60

ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaggca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43267
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89918

<400> 43267
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaccuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcggcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aguucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43268
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89930

<400> 43268
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ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuguu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu agcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccaggu auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43269
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89942

<400> 43269
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aguucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43270
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL89954

<400> 43270

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43271
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89966

<400> 43271
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43272
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89978

<400> 43272
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacguuacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43273
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL89990

<400> 43273
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca agucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucua aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43274
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90002

<400> 43274
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaauugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccaggu auguuaagca gaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaagac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguuuca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43275
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90014

<400> 43275
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaguu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43276
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90026

<400> 43276
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaguu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagauccaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg uguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43277
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90050

<400> 43277

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug cauaacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cgcagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucgggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43278
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90062

<400> 43278
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcgguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauua caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43279
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90074

<400> 43279
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacguag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43280
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90086

<400> 43280
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagauauaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43281
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90098

<400> 43281
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcccuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cgggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucugau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu gacaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca gaacacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggcua caaagauugg auacuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 43282
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90110

<400> 43282
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaguaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aguucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43283
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90122

<400> 43283
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaguugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagagguuu aggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaacuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguuggucc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43284
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90133

<400> 43284
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggaug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43285
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90145

<400> 43285
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagagguuu aggaucaggu 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguuggucc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43286
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90157

<400> 43286
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu cagugucuuc guuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaagagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacuauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcucc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaau ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucua gcgaucuacu caacaaucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43287
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90169

<400> 43287
augaaagcaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagagguuu aggaucaggu 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguuggucc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43288
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL90181

<400> 43288

augaaaguaa aacuacuggu ccuguuaugc acauuugcag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccuaaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aguauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43289
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90217

<400> 43289
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43290
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90229

<400> 43290
augaaaguaa aacuacuggu ccuguuaugc acauuugcag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43291
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90241

<400> 43291
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uguauaggcu accaugcuaa caacucaacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauucccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagccuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43292
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90253

<400> 43292
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaagg aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga aguaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43293
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90265

<400> 43293
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacagcc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca gaagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcugaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aacaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43294
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90277

<400> 43294
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43295
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90289

<400> 43295

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uuugaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gagcccaggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcaa agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43296
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90301

<400> 43296
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uuugaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gagcccaggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcaa agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43297
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90325

<400> 43297
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauggg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43298
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90337

<400> 43298
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauggg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43299
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90349

<400> 43299
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucugga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuag 1698

<210> 43300
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43300
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43301
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90373

<400> 43301
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggaug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43302
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90385

<400> 43302
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaauugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggagaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugucua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcauugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43303
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90397

<400> 43303
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccagauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca guucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43304
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90410

<400> 43304
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43305
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90422

<400> 43305
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

agcaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43306
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL90434

<400> 43306

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43307
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90446

<400> 43307
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucauu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43308
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90458

<400> 43308
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

gcacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43309
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90470

<400> 43309
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43310
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90482

<400> 43310
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucauu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43311
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90494

<400> 43311
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaauugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugucua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcauugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43312
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90506

<400> 43312
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaauugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugucua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcauugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43313
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90518

<400> 43313

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aaugugacua ugccaaacaa agaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagucaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca ucugcauuug a 1701

<210> 43314
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL90530

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccauucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga aaucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43315
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag agggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43316
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90554

<400> 43316
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca agauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43317
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90566

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accguuucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43318
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90578

<400> 43318
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaacuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43319
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90590

<400> 43319
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaauugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugucua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcauugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43320
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90602

<400> 43320
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43321
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90614

<400> 43321
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43322
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90638

<400> 43322
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguaggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43323
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90650

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaccuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43324
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL90662

<400> 43324

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43325
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90674

<400> 43325
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugucugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43326
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90686

<400> 43326
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccau ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43327
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90698

<400> 43327
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43328
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90710

<400> 43328
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43329
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90722

<400> 43329
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaguuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaaugga auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43330
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90746

<400> 43330
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuuaagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43331
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90758

<400> 43331

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43332
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90770

<400> 43332
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga uagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucauguuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaaugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

caucauagca ggaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacauccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug acgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43333
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90782

<400> 43333
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43334
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90794

<400> 43334
augaaaguaa aacuauuggu ccuguuaugc acauuuacag cuacauaugc ggacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc acaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaauacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcacc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuauu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43335
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90806

<400> 43335
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuuga ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43336
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90818

<400> 43336
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43337
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90830

<400> 43337
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43338
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90842

<400> 43338
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43339
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90854

<400> 43339
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug auuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43340
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90866

<400> 43340
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauuuu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43341
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90878

<400> 43341
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug auuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaaa guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43342
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL90890

<400> 43342

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acugugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagaaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccagac 600

auaggugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacuggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag ggucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augauuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugag ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagu uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43343
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90902

<400> 43343
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43344
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90914

<400> 43344
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga aaugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacucuaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccga aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43345
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90938

<400> 43345
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43346
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90950

<400> 43346
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43347
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90962

<400> 43347
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaaa gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaccguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43348
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90974

<400> 43348
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

guaacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaagugauc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaagua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaauauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagacgguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaagg ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43349
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL90986

<400> 43349

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu uaaccugcuu gagaacaguc acaauggaaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aaugguuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guaaaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43350
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91010

<400> 43350
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggaa 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga uagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucauguuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaaugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca ggaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa ugggacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug acgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43351
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91022

<400> 43351
augaaaguaa aacuacuggu ccugcuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggaa 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga uagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucauguuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaagc 600

auaaaugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca ggaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga agguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa ugggacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug acgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 43352
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91034

<400> 43352
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43353
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91046

<400> 43353
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caauaacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu aaauugguug acccacuuaa gauucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacacca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43354
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91058

<400> 43354
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcgcccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccau ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaggauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43355
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91070

<400> 43355
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ggaaaugaca acagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcaugag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagacug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43356
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91082

<400> 43356
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccccaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguga acaggaucac auacggggcc 960

ugucccauau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43357
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91094

<400> 43357
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaaa 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43358
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91106

<400> 43358
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa aaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43359
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91118

<400> 43359
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cgggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguaaauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguuacccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43360
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL91130

<400> 43360

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43361
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91142

<400> 43361
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43362
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91154

<400> 43362
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43363
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL91166

<400> 43363
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43364
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL94984

<400> 43364
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43365
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL94996

<400> 43365
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43366
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95008

<400> 43366
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

auugggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43367
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95020

<400> 43367

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43368
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95032

<400> 43368
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43369
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95044

<400> 43369
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43370
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95056

<400> 43370
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43371
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95068

<400> 43371
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43372
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95080

<400> 43372
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca uaaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc gucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43373
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95092

<400> 43373
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43374
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95104

<400> 43374
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcaugag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggauca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43375
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95116

<400> 43375
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ggaaaugacg acagcacggc aacgcugugc cuugggcacu augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcuaaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaua accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43376
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95128

<400> 43376
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucagggag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaauggg 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43377
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95140

<400> 43377
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggugcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43378
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL95152

<400> 43378

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43379
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95164

<400> 43379
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43380
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95176

<400> 43380
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggagaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43381
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95188

<400> 43381
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43382
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95200

<400> 43382
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43383
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95212

<400> 43383
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95224

<400> 43384
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43385
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95236

<400> 43385

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43386
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95248

<400> 43386
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg ggucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43387
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95260

<400> 43387
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaagugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95272

<400> 43388
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugcgaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43389
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95284

<400> 43389
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43390
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95296

<400> 43390
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaagacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95307

<400> 43391
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaauuu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95319

<400> 43392
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95331

<400> 43393
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ggagaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95343

<400> 43394
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucagggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43395
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95432

<400> 43395
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL95444

<400> 43396

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43397
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95457

<400> 43397
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95470

<400> 43398
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucaa gcaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa gaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguga acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaauc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43399
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95482

<400> 43399
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43400
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95494

<400> 43400
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43401
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL95506

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugagaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uccccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 43402
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauguccccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95530

<400> 43403

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 43404
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43405
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL95554

<400> 43405
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ggaaaugaca auagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauucuucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu aaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95566

<400> 43406
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa guuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43407
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95578

<400> 43407
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ggaaaugacg auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc cagaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95590

<400> 43408
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucuu cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43409
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43411
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL95626

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL95638

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43413
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL95650

<400> 43413
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaacugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL95662

<400> 43414

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguuacccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43415
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL95686

<400> 43415
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95698

<400> 43416
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43417
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95710

<400> 43417
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95722

<400> 43418
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucagggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43419
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95734

<400> 43419
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43420
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95746

<400> 43420
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95758

<400> 43421

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95770

<400> 43422
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43423
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL95782

<400> 43423
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ggaaaugaca auagcacggc gacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucaccgua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aguucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95794

<400> 43424
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaaa caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43425
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95806

<400> 43425
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggggucc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95818

<400> 43426
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43427
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95830

<400> 43427
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95842

<400> 43428
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccucuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aacaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 43429
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95854

<400> 43429
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccguauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga caggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu aaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu ucgaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95866

<400> 43430
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43431
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95878

<400> 43431
augaaggcaa uacuaguaau uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaucccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuauauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95889

<400> 43432
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43433
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43433
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95913

<400> 43434
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc ucaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43435
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95937

<400> 43435
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa cagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95949

<400> 43436
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacaugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43437
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95961

<400> 43437
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95973

<400> 43438
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95985

<400> 43439

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL95997

<400> 43440
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaag 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43441
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96021

<400> 43441
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaag 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96033

<400> 43442
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43443
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96045

<400> 43443
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcguucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96056

<400> 43444
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43445
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96068

<400> 43445
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96080

<400> 43446
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96092

<400> 43447
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96104

<400> 43448
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96116

<400> 43449
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL96128

<400> 43450

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43451
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96152

<400> 43451
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96164

<400> 43452
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaaaauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43453
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96176

<400> 43453
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96188

<400> 43454
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43455
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96200

<400> 43455
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96212

<400> 43456
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43457
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96224

<400> 43457

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96236

<400> 43458
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa ugggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagaaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaaaauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43459
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96248

<400> 43459
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96260

<400> 43460
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43461
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96274

<400> 43461
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96304

<400> 43462
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43463
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96318

<400> 43463
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96330

<400> 43464
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96342

<400> 43465
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96354

<400> 43466
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucuaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96366

<400> 43467
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL96378

<400> 43468

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96390

<400> 43469
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96402

<400> 43470
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacaagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96414

<400> 43471
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96426

<400> 43472
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43473
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96438

<400> 43473
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca guuccgcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96450

<400> 43474
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43475
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96462

<400> 43475

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96474

<400> 43476
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uauccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaguaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu ugggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgacuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43477
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96485

<400> 43477
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96497

<400> 43478
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43479
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96509

<400> 43479
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96521

<400> 43480
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96533

<400> 43481
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucu uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96545

<400> 43482
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96569

<400> 43483
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag agucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96581

<400> 43484
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uauccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaguaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgacuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96592

<400> 43485
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL96604

<400> 43486

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL96616

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL96628

<400> 43488
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggg 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96640

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96652

<400> 43490
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

gauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacacug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggaau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96664

<400> 43491
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96676

<400> 43492
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg ggucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaauuga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43493
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96688

<400> 43493

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96700

<400> 43494
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43495
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96712

<400> 43495
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 43496
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43497
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 43497
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96784

<400> 43498
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagacugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96796

<400> 43499
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96808

<400> 43500
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96820

<400> 43501
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96832

<400> 43502
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43503
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96844

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL96856

<400> 43504

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43505
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96868

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aggaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaguc ccuaauaucg gaucuagacc cagaauaagg 720

aauaucccua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96880

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96892

<400> 43507
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaguucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96904

<400> 43508
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaug 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaguc ccuaauaucg gaucuagacc cagaauaagg 720

aauaucccua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guugggggucc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43509
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96916

<400> 43509
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL96928

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43511
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL96940

<400> 43511

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43513
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL96976

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43515
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL96988

<400> 43515
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa gaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggugcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97000

<400> 43516
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97012

<400> 43517
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97024

<400> 43518
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucaugaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43519
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97036

<400> 43519
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aauaccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97048

<400> 43520
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97060

<400> 43521
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucagaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugaac acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL97072

<400> 43522

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43523
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97084

<400> 43523
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcacug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97096

<400> 43524
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43525
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97108

<400> 43525
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagug 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuucaccag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagggucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cauaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gggaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43528
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43529
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97156

<400> 43529

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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43530
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97168

<400> 43530
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ggaaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43531
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97180

<400> 43531
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97192

<400> 43532
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43533
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97204

<400> 43533
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL97216

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43535
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97228

<400> 43535
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauuggcug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcaggauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gauuaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97240

<400> 43536
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97252

<400> 43537
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97264

<400> 43538
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97276

<400> 43539
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL97288

<400> 43540

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaau aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97300

<400> 43541
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97312

<400> 43542
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43543
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97336

<400> 43543
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97348

<400> 43544
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97372

<400> 43545
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaugccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97384

<400> 43546
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97396

<400> 43547

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugcauca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97408

<400> 43548
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43549
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97420

<400> 43549
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucaugaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97444

<400> 43550
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu ccgagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43551
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97456

<400> 43551
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97468

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 43553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97480

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97493

<400> 43554
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97505

<400> 43555
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucaugaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97517

<400> 43556
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuacccaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97529

<400> 43557
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaaagaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga cgcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL97541

<400> 43558

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97553

<400> 43559
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97565

<400> 43560
augaagacca ucauugcuuu gagcuacauu cuaugucuag uuuucgcuca agaacuuccu 60

ggaaaugacg acagcacggc aacacugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaagcugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97577

<400> 43561
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agccagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97589

<400> 43562
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggacgaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97601

<400> 43563
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97613

<400> 43564
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL97625

<400> 43565

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 43566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97637

<400> 43566
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43567
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97661

<400> 43567
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97673

<400> 43568
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43569
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97685

<400> 43569
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97697

<400> 43570
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgagg caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

auagggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43571
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97709

<400> 43571
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97721

<400> 43572
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43573
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97733

<400> 43573
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacgggacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97745

<400> 43574
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43575
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97757

<400> 43575
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL97769

<400> 43576

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43577
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97781

<400> 43577
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ggaaaugacg acagcacggc aacacugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacggua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaac 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucuu aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97793

<400> 43578
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43579
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97805

<400> 43579
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu augagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97817

<400> 43580
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43581
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97829

<400> 43581
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgagg caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

auagggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97841

<400> 43582
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97853

<400> 43583

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97865

<400> 43584
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43585
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97877

<400> 43585
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug accuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43586
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97889

<400> 43586
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43587
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97901

<400> 43587
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97913

<400> 43588
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43589
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97925

<400> 43589
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcua cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97937

<400> 43590
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagguu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97949

<400> 43591
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu ccgagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97961

<400> 43592
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 43593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97973

<400> 43593
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL97985

<400> 43594

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL97997

<400> 43595
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucagggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98009

<400> 43596
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98021

<400> 43597
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auaguaaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaaugg augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43598
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98033

<400> 43598
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43599
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98045

<400> 43599
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43600
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98057

<400> 43600
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43601
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98069

<400> 43601

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98081

<400> 43602
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuacccaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

gucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43603
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98093

<400> 43603
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98105

<400> 43604
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43605
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98116

<400> 43605
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucagaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98128

<400> 43606
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98140

<400> 43607
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98152

<400> 43608
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccaggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43609
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98164

<400> 43609
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98176

<400> 43610
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43611
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98188

<400> 43611
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL98200

<400> 43612

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43613
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98212

<400> 43613
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98224

<400> 43614
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggaugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43615
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98236

<400> 43615
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaaaca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98248

<400> 43616
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43617
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98260

<400> 43617
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uaguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98272

<400> 43618
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acauuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

agcaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98284

<400> 43619

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uauccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL98295

<400> 43620
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43621
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98307

<400> 43621
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucaugaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98319

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43623
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98331

<400> 43623
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac uuacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98343

<400> 43624
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43625
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98354

<400> 43625
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucaugaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98366

<400> 43626
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98378

<400> 43627
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL98390

<400> 43628
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa ggagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHL98402

<400> 43629
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL98414

<400> 43630

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaacugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43631
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98426

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa accggaucac auaugggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca ggucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98438

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccgaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacucuugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 43633
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98449

<400> 43633
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccgaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacucuugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 43634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98471

<400> 43634
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu caguaucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagagaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43635
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98482

<400> 43635
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacag acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaagcugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43637
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 43637

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 43638
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43639
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43640
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98542

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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43641
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98554

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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43642
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43643
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<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<211> 1701
<212> RNA
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auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggugcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagagaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
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<220>

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauuac auacggggcc 960

ugucccagau auguuaagca aagcacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43649
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<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 43650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auggugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98674

<400> 43651
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucaugaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98686

<400> 43652
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43653
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98699

<400> 43653
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98711

<400> 43654
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43655
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98722

<400> 43655

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98734

<400> 43656
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43657
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98746

<400> 43657
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43658
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98758

<400> 43658
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43659
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98770

<400> 43659
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43660
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98782

<400> 43660
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43661
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98794

<400> 43661
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccucu uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca ggucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43662
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98806

<400> 43662
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cugggggucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca aacagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43663
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98818

<400> 43663
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43664
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98830

<400> 43664
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43665
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98842

<400> 43665
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43666
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL98854

<400> 43666

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43667
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98878

<400> 43667
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauauca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43668
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43668
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

cuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43669
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98902

<400> 43669
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43670
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98913

<400> 43670
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43671
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98925

<400> 43671
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98937

<400> 43672
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43673
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98961

<400> 43673

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98973

<400> 43674
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaguc ccuaauaucg gaucuagacc cagaauaagg 720

aauaucccua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43675
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL98985

<400> 43675
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acaauaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43676
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 43676
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ggaaaugaca auagcacggc aacacugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacacug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggaau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43677
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99009

<400> 43677
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugauc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43678
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99021

<400> 43678
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43679
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99045

<400> 43679
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacgggccc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43680
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99057

<400> 43680
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43681
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99069

<400> 43681
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggа cacacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauua 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99081

<400> 43682
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aggcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43683
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99093

<400> 43683
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 43684
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL99117

<400> 43684

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ggaaacgaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43685
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99129

<400> 43685
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg acauugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauauggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43686
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99141

<400> 43686
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuag acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gauacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43687
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99153

<400> 43687
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uguaccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43688
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99165

<400> 43688
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43689
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99177

<400> 43689
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43690
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99189

<400> 43690
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43691
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99225

<400> 43691

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauacgg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43692
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99237

<400> 43692
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca agagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43693
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99249

<400> 43693
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43694
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99261

<400> 43694
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauuac auacggggcc 960

ugucccagau auguuaagca aagcacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43695
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99273

<400> 43695
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaauaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43696
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99285

<400> 43696
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43697
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99297

<400> 43697
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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43698
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99309

<400> 43698
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagu 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauccagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43699
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99321

<400> 43699
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacgc uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcccaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43700
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99333

<400> 43700
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acaaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43701
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99356

<400> 43701
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99367

<400> 43702
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43703
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99379

<400> 43703
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 43704
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99390

<400> 43704
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucaa 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43705
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99402

<400> 43705
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99426

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauga ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugcgac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43707
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 43707
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugguug augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99450

<400> 43708
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uauggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43709
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99462

<400> 43709

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43710
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99474

<400> 43710
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaauaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43711
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99486

<400> 43711
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43712
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99498

<400> 43712
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcgauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43713
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99510

<400> 43713
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99522

<400> 43714
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43715
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99534

<400> 43715
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggggguacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca ucccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99546

<400> 43716
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gggaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99558

<400> 43717
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugauc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43718
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99570

<400> 43718
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauaccua gcagaauaag caucuauugg acaauaguga aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auauuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccuu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43719
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99582

<400> 43719
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43720
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL99594

<400> 43720

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43721
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99605

<400> 43721
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99617

<400> 43722
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43723
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99629

<400> 43723
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99641

<400> 43724
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaguc ccuaauaucg gaucuagacc cagaauaagg 720

aauaucccua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaccuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43725
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99665

<400> 43725
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aacuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauaccua gcagaauaag caucuauugg acaauaguga aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auauuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99677

<400> 43726
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43727
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99689

<400> 43727

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99701

<400> 43728
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uguaccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43729
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99713

<400> 43729
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaacaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99725

<400> 43730
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43731
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99737

<400> 43731
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43732
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99748

<400> 43732
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43733
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99760

<400> 43733
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ggaaaugaca auagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg ggucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99772

<400> 43734
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43735
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99784

<400> 43735
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43736
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99796

<400> 43736
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaag aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43737
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99808

<400> 43737
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucagaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHL99820

<400> 43738

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacca augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu uuauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugauggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

auugggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43739
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99832

<400> 43739
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucaa 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucucu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagauccaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99844

<400> 43740
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua acgcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43741
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99856

<400> 43741
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99868

<400> 43742
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43743
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99880

<400> 43743
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99892

<400> 43744
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43745
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99904

<400> 43745

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacacug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggaau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99916

<400> 43746
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucagaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaaugcg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga gguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43747
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99928

<400> 43747
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99940

<400> 43748
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucagg aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43749
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99952

<400> 43749
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43750
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99964

<400> 43750
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gggaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag uaaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43751
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99976

<400> 43751
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHL99988

<400> 43752
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00001

<400> 43753
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucaa 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcaugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00013

<400> 43754
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43755
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00025

<400> 43755
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00037

<400> 43756
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43757
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00061

<400> 43757
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00073

<400> 43758
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aauuuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00085

<400> 43759
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00097

<400> 43760
augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuuggga aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa acuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaac 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug aucaacaaag ucucuaucaa aaugcagaua cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacug guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aacaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu accauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauacg uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00108

<400> 43761
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gggaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag uaaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00120

<400> 43762
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00132

<400> 43763

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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucucccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00144

<400> 43764
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43765
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00156

<400> 43765
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuagcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00168

<400> 43766
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43767
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00180

<400> 43767
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacaau ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00192

<400> 43768
augaagacca ucauugcuuu gagcuacauu cuaugccuag uuuucgcuca agaacucccu 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00204

<400> 43769
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucgcu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00216

<400> 43770
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43771
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00228

<400> 43771
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00240

<400> 43772
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43773
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00252

<400> 43773
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHM00264

<400> 43774

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggacg aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43775
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00276

<400> 43775
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43776
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00288

<400> 43776
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43777
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00300

<400> 43777
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43778
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00312

<400> 43778
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua acgcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcucc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43779
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00324

<400> 43779
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00336

<400> 43780
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43781
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00348

<400> 43781

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00360

<400> 43782
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gggaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag uaaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43783
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00372

<400> 43783
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43784
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00395

<400> 43784
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggagca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43785
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00407

<400> 43785
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagguu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00419

<400> 43786
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugcgaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43787
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00443

<400> 43787
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucaa 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00455

<400> 43788
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43789
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00467

<400> 43789
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00479

<400> 43790
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

agcaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43791
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00491

<400> 43791
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43792
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHM00503

<400> 43792

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguggag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43793
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00515

<400> 43793
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu auccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00527

<400> 43794
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccccaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaagacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00539

<400> 43795
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43796
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00543

<400> 43796
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccagaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacaa uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucuaug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00555

<400> 43797
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucuugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00567

<400> 43798
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00579

<400> 43799

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43800
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHM00591

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43801
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00603

<400> 43801
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aacaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00615

<400> 43802
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu auccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43803
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00627

<400> 43803
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucagaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00639

<400> 43804
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43805
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00651

<400> 43805
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00663

<400> 43806
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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43807
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00675

<400> 43807
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43808
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00687

<400> 43808
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43809
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00698

<400> 43809
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcacaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00710

<400> 43810
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43811
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00722

<400> 43811
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43812
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00734

<400> 43812
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43813
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00746

<400> 43813
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43814
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00758

<400> 43814
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucagggag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43815
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00770

<400> 43815
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43816
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00782

<400> 43816
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43817
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00794

<400> 43817

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43818
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00806

<400> 43818
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ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaacuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43819
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00818

<400> 43819
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43820
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00830

<400> 43820
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu ccgaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43821
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00842

<400> 43821
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca acagguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43822
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00854

<400> 43822
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugaaaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43823
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00866

<400> 43823
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugaaaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43824
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00878

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43825
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43826
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43827
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00914

<400> 43827
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aauuuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43828
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00926

<400> 43828
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43829
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00938

<400> 43829
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaauggg 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00950

<400> 43830
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43831
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM00962

<400> 43831
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHM00974

<400> 43832
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggagg aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43833
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM24224

<400> 43833
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaagaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 43834
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM24236

<400> 43834
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ccccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 43835
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM24248

<400> 43835

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggc caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 43836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98309

<400> 43836
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagguau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43837
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98339

<400> 43837
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaauaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccaucua uucaaucuag aggccuauuu ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacagaau gccauugaca agauuacuaa caaaguaaau 1200

ucuguuauug aaaaaaugaa uacacaguuc acagcaguag guaaagaguu caaccaccug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacuguuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuauauga aaagguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaagaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau uaguacuggu agucucccug ggggcaauca guuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 43838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98350

<400> 43838
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acgcgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43839
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98361

<400> 43839
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98372

<400> 43840
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43841
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98383

<400> 43841
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98394

<400> 43842
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcuuguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auccaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43843
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98405

<400> 43843
augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98416

<400> 43844
augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43845
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98427

<400> 43845
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcuuguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auccaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHM98438

<400> 43846

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 43847
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98449

<400> 43847
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cacaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98460

<400> 43848
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuuggga aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucaa aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aacaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaauua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98471

<400> 43849
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98482

<400> 43850
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gacaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98493

<400> 43851
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaauau 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98504

<400> 43852
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgauuacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc aaaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98515

<400> 43853

augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98526

<400> 43854
augaaggcaa uacuaguagu ucugcuacau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaggggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggcuuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugagga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuga uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43855
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98537

<400> 43855
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98548

<400> 43856
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cggucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43857
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98559

<400> 43857
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaagc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98570

<400> 43858
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcuuguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auccaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98581

<400> 43859
augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agaucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98592

<400> 43860
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcuuguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auccaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98603

<400> 43861
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98614

<400> 43862
augaaggcaa uacuaguagu uuugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98625

<400> 43863
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHM98636

<400> 43864

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaucagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98647

<400> 43865
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98658

<400> 43866
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98669

<400> 43867
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcuuguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auccaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug cuaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98701

<400> 43868
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43869
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98712

<400> 43869
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98723

<400> 43870
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uguauagguu aucaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aauuguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacaug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauac uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caagauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuagaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43871
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98734

<400> 43871

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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aucaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98745

<400> 43872
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uguauagguu accaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcuuguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaaccgc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43873
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98756

<400> 43873
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uguauagguu accaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggaguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucuuuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

guaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43874
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98767

<400> 43874
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uguauagguu accaugcgaa caacucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43875
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98778

<400> 43875
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacaggaa acuaugcaaa 180

cuaagagggg uugccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uaugcauuua a 1701

<210> 43876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98798

<400> 43876
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuuuua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43877
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98809

<400> 43877
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuuggga aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43878
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98820

<400> 43878
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43879
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98831

<400> 43879
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aauuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43880
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98836

<400> 43880
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggauacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43881
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98847

<400> 43881
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43882
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHM98858

<400> 43882

augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43883
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98877

<400> 43883
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggauuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43884
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98898

<400> 43884
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaauc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggauuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43885
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98909

<400> 43885
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98932

<400> 43886
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98940

<400> 43887
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98951

<400> 43888
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43889
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98975

<400> 43889

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM98997

<400> 43890
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM99019

<400> 43891
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43892
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM99031

<400> 43892
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43893
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM99043

<400> 43893
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM99054

<400> 43894
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM99065

<400> 43895
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHM99075

<400> 43896
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggagauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHN00717

<400> 43897
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uguauagguu accaugcaaa uaauucaacu gacacuguug auacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucuu gaagacagac auaacggaaa acuauguaaa 180

cuagggggga uagccccauu gcaccugggu aaauguaaca uugccggaug gcuuuuggga 240

aauccagaau gugaauuacu auucacagua agcucauggu cuuacauugu ggaaacaucg 300

aacucagaca augggacaug uuacccaggg gauuucauca auuaugaaga gcugagagag 360

caguugagcu cagugucauc auuugaaaga uucgagauau uccccaagac aaguucgugg 420

cccaaucaug aaacaaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcuggugaaa aaaggaaacu cauauccaaa gcucagcaaa 540

uccuauguua acaauaaggg gaaggaaguc cuugugcuau ggggcaucca ccauccaccu 600

accaguacug aucaacaaag ucucuaccag aaugcagaug ccuauguuuu uguaggguca 660

ucaaaauaua acaggaaguu caagccagaa auagcagcaa gacccaaggu gagaggucaa 720

gcagggagga ugaacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcuuucgcaa ugaauagagg uccuggaucu 840

gguauuauaa uuucggaugc accaguucau gauuguaaca cgacguguca aacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcugguuuua uugagggggg auggacagga 1080

augauagaug gaugguaugg uuaucaccau cagaaugaac agggaucagg auaugcagcg 1140

gaccaaaaaa gcacacagaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

aaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auguuuggac auacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acucuggauu uccacgacuc gaauguaaag 1380

aaccuguaug agaaaguaag aagccaacua aggaacaaug ccaaggaaau ugggaauggc 1440

ugcuuugaau ucuaucacaa augugaugau acaugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaguacuc agaagaauca aaacuaaaca gagaggaaau agauggagua 1560

aaguuggagu caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugu uggucucccu gggggcaauc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 43898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHN00764

<400> 43898
augaaggcaa uacuauuagu cuugcuaugu acauuugcag ccacaaaugc agacacacua 60

uguauagguu accaugcaaa uaauucaacu gacacuguug auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucuu gaagacaaac auaacggaaa acuauguaaa 180

cuagggggga uagccccauu gcaccugggu aaauguaaca uugccggaug gcuuuuggga 240

aauccagaau gugaauuacu auucacagua agcucauggu cuuacauugu ggaaacaucg 300

aacucagaca augggacaug uuacccaggg gauuucauca auuaugaaga gcugagagag 360

caguugagcu cagugucauc auuugaaaga uucgagauau uccccaagac aaguucgugg 420

cccaaucaug aaacaaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcuggugaaa aaaggaaacu cauauccaaa gcucagcaaa 540

uccuauguua acaauaaggg gaaggaaguc cuugugcuau ggggcauuca ccauccaccu 600

accaguacug aucaacaaag ucucuaccag aaugcagaug ccuauguuuu uguaggguca 660

ucaaaauaua acaggaaguu caagccagaa auagcagcaa gacccaaggu gagaggucaa 720

gcagggagga ugaacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcuuucgcaa ugaauagagg uccuggaucu 840

gguauuauaa uuucggaugc accaguucau gauuguaaca cgacguguca aacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccaucu 1020

auucaaucua gaggucuguu uggagccauu gcugguuuua uugagggggg auggacagga 1080

augauagaug gaugguaugg uuaucaccau cagaaugaac agggaucagg auaugcagcg 1140

gaccaaaaaa gcacacagaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

aaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auguuuggac auacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acucuggauu uccacgacuc gaauguaaag 1380

aaccuguaug agaaaguaag aagccaacua aggaacaaug ccaaggaaau ugggaauggc 1440

ugcuuugaau ucuaucacaa augugaugau acaugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaguacuc agaagaauca aaacuaaaca gagaggaaau agauggagua 1560

aaguuggagu caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugu uggucucccu gggggcaauc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 43899
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHN96323

<400> 43899
augaacacuc aaauccuggu auucgcucug auugcgauca uuccaacaaa ugcagacaaa 60

aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaccauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agaucccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu uaauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauugguaua 1680

uaa 1683

<210> 43900
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHN96442

<400> 43900

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa cuaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHN96443

<400> 43901
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca acgggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43902
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHN96444

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ucaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43903
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHN96445

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ucaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43904
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHN96447

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 43905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83765

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83766

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaacgcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43907
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83767

<400> 43907

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43908
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83768

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua uuagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaau acgugcaugg acagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu aggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43909
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83770

<400> 43909
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83771

<400> 43910
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugc 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43911
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83772

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43912
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83773

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43913
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83775

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua auaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auugagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43915
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83776

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugc 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43916
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83777

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc ugcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43917
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83778

<400> 43917
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagucuac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauugaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguucg 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43918
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83779

<400> 43918

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccgucu 600

acuacugcug aucaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac gaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaac uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43919
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83780

<400> 43919
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43920
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83781

<400> 43920
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cuaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43921
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83782

<400> 43921
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83783

<400> 43922
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

auaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83784

<400> 43923
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu uuaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43924
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83785

<400> 43924
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcaaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43925
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83787

<400> 43925

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83788

<400> 43926
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uauccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aacccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucguca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccuaaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43927
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83789

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcggug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auugagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83790

<400> 43928
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43929
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83791

<400> 43929
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83792

<400> 43930
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43931
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83793

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uguauagguu aucaugcgaa uaauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

ucauacauua augauaaagg gaaagaaauc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83794

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augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43933
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHV83795

<400> 43933
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg ucgccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccgcagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83796

<400> 43934
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43935
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83798

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83799

<400> 43936

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43937
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83800

<400> 43937
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu uguugggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaaa acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43938
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83801

<400> 43938
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg ucgccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43939
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83802

<400> 43939
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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaagg ucucuaucag aauguagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83803

<400> 43940
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acgacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43941
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83804

<400> 43941
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83805

<400> 43942
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43943
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83806

<400> 43943

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83807

<400> 43944
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaaggau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43945
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83808

<400> 43945
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaag cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83809

<400> 43946
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43947
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83810

<400> 43947
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83812

<400> 43948
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugaauacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggugua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43949
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83813

<400> 43949
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacaccagag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83814

<400> 43950
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga aauuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43951
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83815

<400> 43951
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43952
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83816

<400> 43952
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguagu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43953
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83817

<400> 43953
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaguaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43954
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83818

<400> 43954

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43955
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83819

<400> 43955
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug ugaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83821

<400> 43956
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaucccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucguca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43957
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83822

<400> 43957
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uauccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucguca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcugcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuauuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83823

<400> 43958
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43959
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83824

<400> 43959
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga aauuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83825

<400> 43960
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83826

<400> 43961

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacuuua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43962
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83827

<400> 43962
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

accacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacgcaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43963
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83828

<400> 43963
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccugaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguucu 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43964
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83829

<400> 43964
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43965
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83830

<400> 43965
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaucugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43966
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83831

<400> 43966
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuauugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuaucg uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccuaaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43967
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83832

<400> 43967
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuucugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43968
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83833

<400> 43968
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43969
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83834

<400> 43969
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43970
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83836

<400> 43970
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43971
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83837

<400> 43971
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43972
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83838

<400> 43972

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggcaauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43973
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83839

<400> 43973
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucacg acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccuuaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43974
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83840

<400> 43974
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43975
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83841

<400> 43975
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43976
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83842

<400> 43976
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaucugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43977
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83843

<400> 43977
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaucugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83844

<400> 43978
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguagu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43979
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83845

<400> 43979

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaccu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43980
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83846

<400> 43980
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43981
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83847

<400> 43981
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43982
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83848

<400> 43982
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43983
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83849

<400> 43983
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43984
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83850

<400> 43984
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccaaagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43985
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83851

<400> 43985
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagagguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacua uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccaucgac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 43986
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83852

<400> 43986
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43987
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83853

<400> 43987
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaacacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau ggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aacccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43988
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83855

<400> 43988
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43989
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83856

<400> 43989
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu uuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaauugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaua gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43990
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83857

<400> 43990

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43991
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83858

<400> 43991
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43992
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83859

<400> 43992
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43993
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83861

<400> 43993
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucgcu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43994
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83862

<400> 43994
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucgcu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43995
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83863

<400> 43995
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43996
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83864

<400> 43996
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc ugaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43997
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83866

<400> 43997

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auacgcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgaugac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43998
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83867

<400> 43998
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auacgcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgaugac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 43999
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83868

<400> 43999
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucgaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44000
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83869

<400> 44000
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggcuauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44001
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83870

<400> 44001
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuauauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu caguaucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuagucaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44002
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83871

<400> 44002
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuauauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu caguaucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuagucaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44003
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83872

<400> 44003
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44004
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83873

<400> 44004
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcugu ggggcauuca ccauccaucu 600

acuguugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44005
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83874

<400> 44005
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu caguaucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44006
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83875

<400> 44006
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44007
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83876

<400> 44007
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44008
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83877

<400> 44008

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacuccgu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44009
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83878

<400> 44009
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44010
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83879

<400> 44010
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44011
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83881

<400> 44011
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44012
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83882

<400> 44012
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44013
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83883

<400> 44013
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44014
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83884

<400> 44014
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44015
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83885

<400> 44015

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccugagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagucuac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44016
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83887

<400> 44016
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44017
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83888

<400> 44017
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44018
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83889

<400> 44018
augaaggcaa uacuaguagu ucugcuacau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44019
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83890

<400> 44019
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44020
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83891

<400> 44020
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44021
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83893

<400> 44021
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44022
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83894

<400> 44022
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44023
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83895

<400> 44023
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaaaca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44024
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83896

<400> 44024
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44025
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83897

<400> 44025
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44026
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83898

<400> 44026

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggucacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44027
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83899

<400> 44027
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44028
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83900

<400> 44028
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44029
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83901

<400> 44029
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44030
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83902

<400> 44030
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44031
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83903

<400> 44031
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44032
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83904

<400> 44032
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagaaaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44033
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83905

<400> 44033

augaaggcaa uacuaguagu ucugcuauau acacuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44034
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83906

<400> 44034
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguagu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44035
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83907

<400> 44035
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44036
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83908

<400> 44036
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaccacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaaaaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44037
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83911

<400> 44037
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcacuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaccacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44038
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83912

<400> 44038
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44039
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83913

<400> 44039
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug ggcaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44040
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83915

<400> 44040
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44041
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83916

<400> 44041
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44042
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83917

<400> 44042
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcacuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaccacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44043
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83919

<400> 44043
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44044
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHV83920

<400> 44044

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44045
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83921

<400> 44045
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44046
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83922

<400> 44046
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagggggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucagccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44047
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83923

<400> 44047
augaaggcaa uacuaguagu ucugcuauau acauuuacaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcacuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugaauacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggugua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44048
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83924

<400> 44048
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44049
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83925

<400> 44049
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uucccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauua uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugaauacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggugua 1560

aagcuggaau caacaaagau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44050
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83926

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44051
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83927

<400> 44051

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaccacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44052
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44052
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44053
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44054
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83930

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44055
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83931

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44056
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83932

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44057
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83933

<400> 44057
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgcucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44058
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83934

<400> 44058
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44059
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83935

<400> 44059
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44060
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83937

<400> 44060
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44061
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83938

<400> 44061
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gaucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44062
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83939

<400> 44062
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gaucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44063
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83940

<400> 44063
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucaugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauagggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44064
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83941

<400> 44064
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44065
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83943

<400> 44065
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44066
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83944

<400> 44066
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacgagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44067
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83945

<400> 44067
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44068
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83947

<400> 44068
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacag ugaaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44069
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83948

<400> 44069

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83949

<400> 44070
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44071
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83950

<400> 44071
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHV83953

<400> 44072
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag uaaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga ucugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44073
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHV83954

<400> 44073
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44074
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHV83956

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcccccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacag 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

auugggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44075
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ13523

<400> 44075
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaucagauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa ugagaaaugg 300

gaccuuuuug uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuau caacgaaggc 420

uucaauugga cuggagucac ucagaguggg ggaagcuaug cuugcaaaag gggaucuguu 480

aacaguuucu ucaguagauu gaauugguug uacaaaucag aaagcaaaua uccagugcug 540

aacgugacua ugccaaacaa uggcaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgagcacgg acaaagaaca aaccaaccua uauguucgag caucagggag agucacaguc 660

ucuaccaaga gaagccagca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuguua 780

auuaauagca cugggaaccu aauugcuccu cgggguuacu ucaaaauacg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu ggcaccugca guuaugaaug caucacucca 900

aauggaagca uucccaauga caaacccuuu caaaauguaa acaagaucac auaugggggca 960

ugucccaggu auguuaagca aaacacucug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaccucug gucuuacaac 1320

gcugagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagagaug 1380

aacaaauugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugcuugca uagggucaau cagaaaugga 1500

acuuauaacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugagcuga agucaggaua caaagacugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44076
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ13582

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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaaugggaa acuauguuua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggugaag aauggcuugu acccaaacuu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaguugacc aaaagacccu cuaucguaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaaccuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44077
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35584

<400> 44077
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35608

<400> 44078
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44079
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35620

<400> 44079
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ35632

<400> 44080

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44081
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35644

<400> 44081
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35656

<400> 44082
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44083
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35668

<400> 44083
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35680

<400> 44084
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugccug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44085
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35692

<400> 44085
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35716

<400> 44086
augaagacua ucauugcuuu gagcuacauu cuaugucuga uuuucgcuca agaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44087
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35728

<400> 44087

augaagacua ucauugcuuu gagcuacauu cuaugucuga uuuucgcuca agaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugccug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35740

<400> 44088
augaagacua ucauugcuuu gagcuacauu cuaugucuga uuuucgcuca agaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44089
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35752

<400> 44089
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35764

<400> 44090
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44091
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35776

<400> 44091
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35823

<400> 44092
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag gaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44093
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35834

<400> 44093
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35845

<400> 44094
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44095
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35856

<400> 44095
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35867

<400> 44096
augaagacua acauugcuuu gagcuacauu cuaugucugg uuuccgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuaccga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguuguccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44097
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35879

<400> 44097
augaagacua acauugcuuu gagcuacauu cuaugucugg uuuccgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuaccga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44098
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ35891

<400> 44098

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44099
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35902

<400> 44099
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44100
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35913

<400> 44100
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaauaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccgucua uucaaucuag aggccuauuu ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacagaau gccauugaca agauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcaguag guaaagaauu caaccaccug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugacg guuuccugga cauuuggacu 1320

uacaaugccg aacuguuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaggguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaagaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca guuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44101
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35924

<400> 44101
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacaucgu ggaaacaucu 300

aguucagaca auggaacgug cuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua uuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

acucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugcgc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuauc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35935

<400> 44102
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accuguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44103
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35946

<400> 44103
augaagacua acauugcuuu gagcuacauu cuaugucugg uuuccgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuuggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuaccga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca acagauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35958

<400> 44104
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44105
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35980

<400> 44105

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ35991

<400> 44106
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44107
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36002

<400> 44107
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36013

<400> 44108
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacaggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44109
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36024

<400> 44109
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagggu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggac uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36035

<400> 44110
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacucccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugauucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44111
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36047

<400> 44111
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacucccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36059

<400> 44112
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaag 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44113
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36070

<400> 44113
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagggu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggac uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44114
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36081

<400> 44114
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacaggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44115
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36092

<400> 44115
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagggu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggac uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44116
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ36103

<400> 44116

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44117
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36114

<400> 44117
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagggu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggac uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44118
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36125

<400> 44118
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44119
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36136

<400> 44119
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44120
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36147

<400> 44120
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacucccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44121
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36158

<400> 44121
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44122
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36169

<400> 44122
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44123
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36180

<400> 44123

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36191

<400> 44124
augaagacua acauugcuuu gagcuacauu cuaugucugg uuuccgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuaccga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44125
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36203

<400> 44125
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacucccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36215

<400> 44126
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ucgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuuagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44127
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36226

<400> 44127
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacucccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44128
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44128
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44129
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ36249

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44130
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36260

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacauuu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44131
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44132
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ36283

<400> 44132
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44133
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ36294

<400> 44133
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44134
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ36306

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcaa aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44135
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36317

<400> 44135
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaagaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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guaacaguaa cacacucuau uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaagaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucaa gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44140
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagagaugaa gcauuaaaca accgauucaa gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44141

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

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gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AHZ36433

<400> 44142
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau gaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca acagauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 44144
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugccug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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<400> 44149
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgacgugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuucaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44151
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36541

<400> 44151
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcaguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36553

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44153
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44153
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44154
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44154
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44155
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44155
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44156
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36601

<400> 44156
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44157
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36613

<400> 44157
augaagacua ucauugcuuu gagcuacauu cuaugucuga uuuucgcuca agaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36625

<400> 44158
augaagacua ucauugcuuu gagcuacauu cuaugucuga uuuucgcuca agaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauua 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44159
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ36637

<400> 44159

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44160
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44160
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44161
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36661

<400> 44161
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36673

<400> 44162
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44163
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ36685

<400> 44163
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaagaga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44164
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39698

<400> 44164
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguauggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44165
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39722

<400> 44165
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

gauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauga ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44166
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39734

<400> 44166
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

gauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauga ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44167
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39746

<400> 44167
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agagagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44168
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39758

<400> 44168
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

gauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauga ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44169
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39770

<400> 44169
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

gauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauga ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44170
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ39782

<400> 44170

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

gauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauga ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44171
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39794

<400> 44171
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39806

<400> 44172
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44173
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39818

<400> 44173
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caauaacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg gaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugua auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaaaca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuua uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39841

<400> 44174
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44175
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39853

<400> 44175
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44176
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39865

<400> 44176
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44177
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39877

<400> 44177

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gauuaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44178
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39889

<400> 44178
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44179
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39913

<400> 44179
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44180
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39925

<400> 44180
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44181
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39937

<400> 44181
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44182
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39949

<400> 44182
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44183
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39961

<400> 44183
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44184
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39973

<400> 44184
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44185
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ39985

<400> 44185
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcauccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gauuaaggga 1560

guugagcuua agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44186
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44186
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44187
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40009

<400> 44187
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcacuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44188
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ40021

<400> 44188

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44189
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40033

<400> 44189
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44190
<211> 1701
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<213> Artificial Sequence

<220>
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<400> 44190
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44191
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40060

<400> 44191
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44192
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44192
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44193
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44193
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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44194
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44194
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44195
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40108

<400> 44195

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagu 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44196
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40120

<400> 44196
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44197
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40130

<400> 44197
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauuac auacggggcc 960

uguccccagau auguuaagca aagcacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaaaauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44198
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40142

<400> 44198
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuucaaga uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuucug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga cagaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauugaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44199
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40154

<400> 44199
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ggaaaugaca acagcacggc aacguugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucaccgua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauaac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44200
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40166

<400> 44200
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugugacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaagaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44201
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40177

<400> 44201
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44202
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40189

<400> 44202
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa cgaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag cauauauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44203
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40201

<400> 44203
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44204
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40213

<400> 44204
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44205
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40225

<400> 44205
augaagacca ucauugcuuu gagcuacauu cuaugucuag uuuuugcuca agaacuuccu 60

ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug guuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuuacuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44206
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40237

<400> 44206
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccacuga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44207
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40249

<400> 44207
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga cagaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc auuauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44208
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40261

<400> 44208
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44209
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40273

<400> 44209
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44210
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40285

<400> 44210
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggaaa 840

agcucaauaa ugagaucaga uacacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44211
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40297

<400> 44211
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44212
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40309

<400> 44212
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauuggcug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggguag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gauuaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44213
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40321

<400> 44213

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg ugaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44214
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44214
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44215
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40345

<400> 44215
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaguga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44216
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ40357

<400> 44216
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44217
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40369

<400> 44217
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaga 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu agagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44218
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40381

<400> 44218
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcucu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44219
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40393

<400> 44219
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44220
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40405

<400> 44220
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44221
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40417

<400> 44221
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44222
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40429

<400> 44222
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucgcu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44223
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40441

<400> 44223
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuagcagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44224
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ40453

<400> 44224

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag cagcaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gauccagacc caggguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcugguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua ugguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44225
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40465

<400> 44225
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccg cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uaugccggau 360

uaugccuccc ugaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacgauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa ccggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44226
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40477

<400> 44226
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucugau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aucugugauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggaaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugaaga uaugggcaau 1440

ggcuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44227
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40489

<400> 44227
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua cgacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44228
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40500

<400> 44228
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44229
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40512

<400> 44229
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

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<210> 44230
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguccaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 44231
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44231

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugguag augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gauacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 44232
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 44233
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44234
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44234
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugcgaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg caugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44235
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40595

<400> 44235
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa ugaaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc caaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

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<210> 44236
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ40606

<400> 44236
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44237
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ40618

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44238
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44238
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44239
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40638

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44240
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44241
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40662

<400> 44241
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua uaccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44242
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ40674

<400> 44242

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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44243
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44243
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44244
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40698

<400> 44244
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44246
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uauggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44247
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44247
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgggcacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga cagaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44248
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44249
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44249

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ggaaaugaca acagcacggc aacguugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu gaauugguua acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucaccgua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauaac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaauguaac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44250
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40782

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44251
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44252
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40804

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44253
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40815

<400> 44253
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44254
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40826

<400> 44254
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag uaucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44255
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40848

<400> 44255
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44256
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40881

<400> 44256
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44257
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40892

<400> 44257
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44258
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40914

<400> 44258
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44259
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ40925

<400> 44259
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44260
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ40936

<400> 44260

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44261
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44261
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44262
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44262
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44263
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44263
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44264
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ40980

<400> 44264
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44265
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ40991

<400> 44265
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44266
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41002

<400> 44266
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44267
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41013

<400> 44267

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44268
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41024

<400> 44268
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44269
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44269
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44270
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44270
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44271
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44271
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44272
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44273
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ41079

<400> 44273
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44274
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41090

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44275
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ41101

<400> 44275
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44276
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41112

<400> 44276
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44277
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41123

<400> 44277
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44278
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ41134

<400> 44278

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44279
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41145

<400> 44279
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44280
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41156

<400> 44280
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44281
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41167

<400> 44281
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44282
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41178

<400> 44282
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44283
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41189

<400> 44283
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44284
<211> 1701
<212> RNA
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<220>
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<400> 44284
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44285
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44285

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44286
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41281

<400> 44286
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44287
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44287
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44288
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ41303

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44289
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41314

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44290
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44291
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41336

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44292
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41347

<400> 44292
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44293
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41358

<400> 44293
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44294
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41366

<400> 44294
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44295
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41377

<400> 44295
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44296
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ41388

<400> 44296

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44297
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41410

<400> 44297
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44298
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41432

<400> 44298
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44299
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41441

<400> 44299
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44300
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41452

<400> 44300
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44301
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41463

<400> 44301
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uguauagguu aucaugcgaa caauucaaca gacacuguau acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44302
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41473

<400> 44302
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44303
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41484

<400> 44303

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44304
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41495

<400> 44304
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44305
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41506

<400> 44305
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44306
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41517

<400> 44306
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcgaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44307
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41528

<400> 44307
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcgaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug aucaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44308
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41539

<400> 44308
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44309
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41550

<400> 44309
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44310
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41561

<400> 44310
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44311
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41572

<400> 44311
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacgaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44312
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41583

<400> 44312
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44313
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41594

<400> 44313
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44314
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ41605

<400> 44314

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaauac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaugggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44315
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41616

<400> 44315
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa gaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44316
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41627

<400> 44316
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44317
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41638

<400> 44317
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44318
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41649

<400> 44318
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44319
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41660

<400> 44319
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gaggggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44320
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41671

<400> 44320
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44321
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41682

<400> 44321

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44322
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41693

<400> 44322
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44323
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41704

<400> 44323
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44324
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41715

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44325
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41726

<400> 44325
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44326
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41737

<400> 44326
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44327
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41748

<400> 44327
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44328
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ41759

<400> 44328
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug agcaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcagcaa gacccaaagu gagggaucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44329
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42561

<400> 44329
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugcaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg aacaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44330
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42572

<400> 44330
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

gacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44331
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42584

<400> 44331
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44332
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ42596

<400> 44332

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca gagcacucug aaguuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44333
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42608

<400> 44333
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

ccaaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua cgacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44334
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42619

<400> 44334
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuacu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44335
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42631

<400> 44335
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaauuaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag acgcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44336
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42643

<400> 44336
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaagc aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaua 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gcuggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaagg acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44337
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42654

<400> 44337
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa cgaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44338
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42666

<400> 44338
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugcgaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<210> 44339
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<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac uaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<211> 1701
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggggcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuuggggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 44342
<211> 1701
<212> RNA
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacag acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44343
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44344
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggagagaaa ugcugaaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44345
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ42748

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 44346
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42760

<400> 44346
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44347
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42772

<400> 44347
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ggaaaugacg acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaaagaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca aacuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggaa 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44348
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42784

<400> 44348
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44349
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42796

<400> 44349
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aauuuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44350
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AHZ42808

<400> 44350

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaauuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44351
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42820

<400> 44351
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggagagaaa ugcugaaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44352
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42831

<400> 44352
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccau 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggugca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44353
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ42843

<400> 44353
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auggugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44354
<211> 1701
<212> RNA
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacaugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 44355
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacca ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagagua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44356
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44356
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ggaaaugaca auagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44357
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44357

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44358
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44358
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44359
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugauc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44360
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44360
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44361
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ59759

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

agcagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44362
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucaaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

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auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

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uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44363
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<212> RNA
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aaguagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44364
<211> 1683
<212> RNA
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44365
<211> 1683
<212> RNA
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44366
<211> 1683
<212> RNA
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44367
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44368
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

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uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

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uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44369
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ59867

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucaaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44370
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ59879

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44371
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucaaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44372
<211> 1683
<212> RNA
<213> Artificial Sequence

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44373
<211> 1683
<212> RNA
<213> Artificial Sequence

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucaaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44374
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ59951

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

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caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44375
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ59963

<400> 44375

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44376
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ59988

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44377
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ60000

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44378
<211> 1683
<212> RNA
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<220>
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44379
<211> 1683
<212> RNA

<213> Artificial Sequence

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44380
<211> 1683
<212> RNA
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aucugccucg gacaucaugc cgugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aaguagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44381
<211> 1683
<212> RNA
<213> Artificial Sequence

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aucugccucg gacaucaugc cgugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aaguagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44382
<211> 1683
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AHZ60060

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aucugccucg gacaucaugc cgugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44383
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AHZ60072

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aucugccucg gacaucaugc cgugucaaac ggaacuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aaguagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44384
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ60084

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aaguagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44385
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AHZ60096

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauga ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44386
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIC64889

<400> 44386

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44387
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73738

<400> 44387
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44388
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73739

<400> 44388
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaca ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44389
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73740

<400> 44389
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaccu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaaccggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuagaca gagaaaaaau agaugggggua 1560

aggcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu aggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44390
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73741

<400> 44390
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaagcugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

ggcuguuuca aaauauacca cagaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcauuaaaca accgguucca gaucagggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73742

<400> 44391
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaac 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaaggaagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauagaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73743

<400> 44392
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaac 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaaggaagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauagaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuggugcugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73744

<400> 44393

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73745

<400> 44394
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu auccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cugggcacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44395
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73746

<400> 44395
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaaccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucacua 1680

caguguagaa uauguauuua a 1701

<210> 44396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73747

<400> 44396
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucacg acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccuuaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44397
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73748

<400> 44397
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuucuugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIC73749

<400> 44398
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaaaagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucacu caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuaccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44399
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73750

<400> 44399
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44400
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73754

<400> 44400
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaggaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44401
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73755

<400> 44401
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73756

<400> 44402
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73757

<400> 44403
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIC73758

<400> 44404

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaucaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44405
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73760

<400> 44405
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73761

<400> 44406
augaaggcaa uacuaauagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44407
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73762

<400> 44407
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73763

<400> 44408
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44409
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73765

<400> 44409
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44410
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73766

<400> 44410
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggagcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44411
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73767

<400> 44411

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaauuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagauaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73768

<400> 44412
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccaucgac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44413
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73769

<400> 44413
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaaggaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73770

<400> 44414
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugagaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44415
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73771

<400> 44415
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73772

<400> 44416
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44417
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73773

<400> 44417
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcu 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73775

<400> 44418
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccaucgac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44419
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73776

<400> 44419
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguu cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu gccgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44420
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73777

<400> 44420
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73778

<400> 44421
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73779

<400> 44422
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44423
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73780

<400> 44423
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73781

<400> 44424
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauauccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauauuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44425
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73782

<400> 44425
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73783

<400> 44426
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44427
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73784

<400> 44427
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73785

<400> 44428
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg cuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44429
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73786

<400> 44429

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uagaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73787

<400> 44430
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugagaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucguacugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44431
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73788

<400> 44431
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccaucgac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73789

<400> 44432
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaccuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagucaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcu 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44433
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73790

<400> 44433
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIC73791

<400> 44434
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuauag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44435
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73792

<400> 44435
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg cuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73793

<400> 44436
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44437
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73794

<400> 44437
augaagacua ucauuggagu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73796

<400> 44438
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73797

<400> 44439
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIC73798

<400> 44440

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44441
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73800

<400> 44441
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggca 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73801

<400> 44442
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44443
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73802

<400> 44443
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73803

<400> 44444
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44445
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73804

<400> 44445
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73805

<400> 44446
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73806

<400> 44447

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73807

<400> 44448
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua auaauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73808

<400> 44449
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuuggggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73809

<400> 44450
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uguauagguu aucaugcgaa caauucaaca gacacugugg acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuccgccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugaggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44451
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73810

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucaaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacag augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44452
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73813

<400> 44452
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uaaucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44453
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73815

<400> 44453
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44454
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73817

<400> 44454
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccagaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44455
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73819

<400> 44455
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44456
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73820

<400> 44456
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauauugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44457
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73821

<400> 44457
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIC73824

<400> 44458

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agauacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggguu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggguucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44459
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73825

<400> 44459
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73827

<400> 44460
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaccacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagca 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugauacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73828

<400> 44461
augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73830

<400> 44462
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44463
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73833

<400> 44463
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucugucauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73834

<400> 44464
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgaugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug gccaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73835

<400> 44465

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu caguaucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuuaugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73836

<400> 44466
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73837

<400> 44467
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaggccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuuggggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73838

<400> 44468
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucagu caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauua augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga ucugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44469
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73839

<400> 44469
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73840

<400> 44470
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccau gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73841

<400> 44471
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuauugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uauaccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auugagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIC73842

<400> 44472
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaggccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaagcucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44473
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID48082

<400> 44473
auggagaaaa uagugcuucu uuuugcaaua gucagucuug uuaaaaguga ucagauuugc 60

auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguguu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuaggggu gagcucagca uguccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua guaugccauu ccacaauaua cauccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

agaagaagaa aaaagagagg auuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccauagca augagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa ccacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucauaaaugu gaugaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucgau aggaauuuac caaauacugu caauuuauuc uacaguggcg 1620

aguucccuag cacuggcaau caugguagcu ggucuauccu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 44474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70444

<400> 44474
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cgccacagca agcucauggu ccuacauagu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugca 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaggug aaaaacaaug ccaaggaaau uggaaacggc 1440

uguuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcuuuaa ugggucucua 1680

caguguagaa uauauauaua a 1701

<210> 44475
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70445

<400> 44475
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu ugaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguagu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccuucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggauu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacagg uagucucccu gggggcaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AID70446

<400> 44476

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucugguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagguac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccguuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggauu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacagg uagucucccu gggggcaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44477
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70447

<400> 44477
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaagcugg agcaaaaggc 480

uucuacaaaa auuuacuaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaguugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacuucagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auggagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaaugga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggauu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70448

<400> 44478
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcaucugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucugucauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uuguauugga aaaugaaaga acuuuggaau accaggauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuagaau uuuaccacaa auuugauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu ggggacaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70449

<400> 44479
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc ugacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacu gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg cuggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uaguuucccu gggggcaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguguuua a 1701

<210> 44480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70450

<400> 44480
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcaucugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggaguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacauccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug agaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa auuugauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacagg uagucucccu gggggcaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70451

<400> 44481
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa guuugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggagua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70452

<400> 44482
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcaucugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugggcu cagugucauc auuuaaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggagcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaagg acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug agaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaaugga 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggauu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugcgcuuuaa ugggucucua 1680

caguguagua uauguauuua a 1701

<210> 44483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70453

<400> 44483

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacagugcu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucgcu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccaa gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggucacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaucugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa auuugauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacagg uagucucccu gggugcaauc aguuuuugga ugcgcuuuaa ugggucucua 1680

cauuguagaa uauguauuua a 1701

<210> 44484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70454

<400> 44484
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaaaugaga cuggccacag gauugaggaa uguccccgugu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70455

<400> 44485
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gaucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauauuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgag 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

aaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaaugga 1440

ugcuuugaau uuuaccacaa auuugauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70456

<400> 44486
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg cuggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua guuaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaucugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa auuugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacagg uagucucccu gggggcaauc aguuuuugga ugugcuuuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44487
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70457

<400> 44487
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcaucugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcgacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagucu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuguauugga aaaugaaaga acuuuggaau accacgauuc aaaugugaag 1380

aacuuauaug agaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaaugga 1440

ugcuuugaau uuuaccacaa auuugauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacagg uagucucccu gggggcaauc aguuuuugga agugcuuuaa ugggucucua 1680

caguguagaa uauguaguua a 1701

<210> 44488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70458

<400> 44488
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaauuuccu 60

ggaaaugaca acagcauggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auggugaaaa caauaacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcaacagc ccucaucaga uccuugaugg aggaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccagaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugcauccc uuaggucaau aguugccuca uccgguacac uggaauuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga aaaagcgcuu cuugcaaaag gggaucugac 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa auuacaaaua uccagcauug 540

aaaguuacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgu acaaugauca aaucagccua uaugcucaag caucaggaau aaucacaguc 660

ucuaccaaaa gaaaccaaca aacugugauc ccgaauaucg gaucuagacc cagaguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa auaggaucac auaugggggcc 960

uguccccaggu auguuaagca aaacacccua aaauuggcaa caggaaugag aaauguuccca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaaugguug augguuggua cgguuucagg caucaaaauu cugagggaau gggacaagca 1140

gcagaucuca aaagcacuca agcagcgauc aaucaaauca auggaaagcu gaauagguug 1200

aucgggaaaa ccauugagaa auuccaucag auugaaaaag aauucucaga gguagaaggg 1260

agaauucagg accucgagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

gacaaacugu uugaaagaac aaagaagcaa augagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc gugauauaua cagggaugaa gcauugagca accgguucca gaucaaaggu 1560

guugagcuga aggcaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcucu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaaccuu 1680

aggugcaaca uuugcauuug a 1701

<210> 44489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70459

<400> 44489
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaguuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcac caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaug aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacauc 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcucu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70460

<400> 44490
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg auggauggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcucu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70461

<400> 44491
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauauugag gacacuaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcauca cuugcauuug a 1701

<210> 44492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70463

<400> 44492
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu aggggcuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44493
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70464

<400> 44493
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggagaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag gaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AID70465

<400> 44494

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggagaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg auggauggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccac cacgcaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauaccu caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuuac cgaaucaugu 1620

uuucugcucu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44495
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70466

<400> 44495
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg auggauggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaug aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucuuug gucauacauc 1320

ggggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcucu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70467

<400> 44496
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu gugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaug aauucucaga agucgaaggg 1260

agaauucagg gccuugagaa auauguugag gacacuaaaa uagaucuuug gucauauauc 1320

gcggagcuua uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcucu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70468

<400> 44497
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gauuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcua caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg auggauggua cgguuucagg caucaaaauu gugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

augggaaau ccaucgagaa auuccaucag auugaaaaug aauucucaga aguagaaggg 1260

agaauucagg gccuugagaa auauguugag gacacuaaaa uagaucuuug gucauacaac 1320

ggggagcuua uuguugcccu ggagaaccaa cacgcaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauaccu caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuuac cauaucaugu 1620

uuucugcucu guguugcuuu guuggggguuc aucauguggg cccgccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44498
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70469

<400> 44498
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ggaaaugaga acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gauuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu gugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg gccuugagaa auauguugag gacacuaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuuac cauaucaugu 1620

uuucugcucu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70470

<400> 44499
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagguuccc 60

ggaaaugaga acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gauuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg auggauggua cgguuucagg caucaaaauu gugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg gccuugagaa auauguugag gacacuaaaa uagaucuuug gucauacaac 1320

ggggagcuuc uuguugcccu ggagaaccac cacacaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuuac cauaucaugu 1620

uuucugcucu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70471

<400> 44500
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucacuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacuuug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaug aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucuuug gucauacaac 1320

gcggagcuua uuguugcccu ggagaaccac cacacaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugauuu guguugcuuu guugggguuc aucauguggg cuugccaaaa aggcaaccuu 1680

aggugcaaca uuugcauuug a 1701

<210> 44501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70472

<400> 44501

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccac cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcucu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70473

<400> 44502
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu gugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg gccuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucugaaaug 1380

aacaaacuuu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcucu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44503
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uguuuggggag 1080

ggaauggugg auggaugguu cgguuucaga caucaaauuu gugagggaag gggacaagca 1140

gcgggucucg aaagcacuca agcagccauu gaucaaauca augggaagau gaauagauug 1200

augggggaaaa ccaucgggaa auuccaucag auuguaaaug aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacauc 1320

ggggagcuuc uuguugcccu ugagaaccac cacgcaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc gcgaugugua cagagaugaa gcauuaaaca accgauucca caucaaggga 1560

guugagcuga agucagggua caaagauugg aucauaugga uuuccucuac cgaaucaugu 1620

uuuuugcucu guguugcuuu guugggguuc aucauguggg cuugccaaaa aggcaacauu 1680

agaagcaaca uuugcauuug a 1701

<210> 44504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca auagcggguu ucauagaaaa uguuuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu gugagggaag gggacaagca 1140

gcagaucuca aaagcgcuca agcagccauu gauccaauca augggaagcu gaauagauug 1200

augggggaaaa ccaucgggaa auuccaccag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucuuug gucauacaac 1320

ggggagcuuc uuguugcccu ggagaaccaa cacgcaauug aucuaacuga cucagaaaug 1380

aacaaagugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugauc acgaugugua cagaaaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucuucuca guguugcuuc guuggggguuc aucauguggg ccuaccaaaa aggcaacauu 1680

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<210> 44505
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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ggaaaugaaa acagcacggc aacgcugggc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggacg aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacaaucug aaauuggcua caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgaaaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg gccgugagaa auauguugag gacacuaaaa uagaucuuug gucauacauc 1320

ggggaguuua uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcguuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuucugcucu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44506
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ggaaaugaca gcagcacggg aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cgggugaaau augcaacagg ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguauauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga gauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugcu auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca acacccucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg auggauggua cgguuucagg caucaaauuu gugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaucgagaa auuccaucag auugaaaaag aauucucaga aguagaaugg 1260

agaauucagg gccuugagaa auauguugag gacacuaaag uagaucuuug gucauauaac 1320

ggggagcuua uuguugcccu ggagaaccac cacacaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauaccu caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuuac cgaaucaugu 1620

uuucugcuca guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AID70478

<400> 44507
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agagguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg auggauggua cgguuucagg caucaaaauu gugagggaag gggacaagca 1140

gcagaucucg aaagcacuca agcagcaauu gaucaaauca augggaagau gaauagauug 1200

augggggaaaa ccaucgagaa auuccaucag auugaaaaag aauuuucaga aguagaaggg 1260

agaauucagg gccgugagaa auauguugag gacacuaaaa uagaucuuug gucauauaac 1320

ggggagcuuc uuguugaccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaagugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

auuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccaaugga uuuccuuuac cauaucaugu 1620

uuucugcucu guguuucuuu guugggguuc aucauguggg cuugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AID70632

<400> 44508
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uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44509
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AID70634

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaacgaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggga auccaucauu ccgugucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacagucg ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagagca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccgga uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucag uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcuaagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 44510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72902

<400> 44510
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44511
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72903

<400> 44511
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg guccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72904

<400> 44512
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg guccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44513
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72905

<400> 44513
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augccacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagu 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72906

<400> 44514
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaacuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72907

<400> 44515
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72908

<400> 44516
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72909

<400> 44517
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacggu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggaaccac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIF72910

<400> 44518
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuaggggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44519
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72911

<400> 44519

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugacgg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagug 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44520
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucag caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cagagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72913

<400> 44521
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72914

<400> 44522
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aggugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga ggucgaaggg 1260

agaauucacg accuugagaa auauguugag gacacuuuau ucgaucucug gguauacaac 1320

ucggagcuuc uuguugcccu gcagaaccaa cauacaauug aucuaccuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44523
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72915

<400> 44523
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucuucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucaggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaaa ugcacccauu ggcaaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggugcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72916

<400> 44524
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaaua gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44525
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIF72917

<400> 44525
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agaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa aaaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaacugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaacugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugagaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcgaca uuugcauuug a 1701

<210> 44526
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIG44693

<400> 44526
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauucua gacacuugua ccauugaagg acuaaucuac 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguug aaaaucuaga agagcuaagg 360

ucacucuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

gaaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcacagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggacc 660

uucaaaccau ugauaggacc aaggccucuu guccacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg aaaucuaaua 780

gcuccauggu auggacacau ucucucagga aagagccacg ggagaauccu gaagacugau 840

uuaaaaagag guaacugcac agugcaaugu cagacagaga aggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu guucgaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu cauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua ucgaucauga auucagcgag guugaaacua gacuuaacau gauuaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaauuugua caauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accagugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aaaacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 44527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10728

<400> 44527
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaaca 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu aaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10729

<400> 44528
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ggacaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuaaaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44529
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10730

<400> 44529
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44530
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIJ10731

<400> 44530

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44531
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10732

<400> 44531
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca agaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10733

<400> 44532
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucgau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcucu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44533
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10734

<400> 44533
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauauag gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaaa gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44535
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccacaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacau uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIJ10737

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIJ10738

<400> 44537

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacauuuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44538
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10741

<400> 44539
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ggaaaugaca auagcacggc aacguugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccccaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10742

<400> 44540
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

gcuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcacuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44541
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10743

<400> 44541
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacauuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10744

<400> 44542
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagaacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44543
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10745

<400> 44543
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10747

<400> 44544
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cugggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10748

<400> 44545
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cugggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10750

<400> 44546
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa uaagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10752

<400> 44547
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa auuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccuaauaucg gaucuagacc cagaauaagg 720

aauaucccua guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIJ10753

<400> 44548

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44549
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10754

<400> 44549
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcuuug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10755

<400> 44550
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaaagaag caaagccuac agcaacuguu acccuuauga ugugccggac 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag cauuuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggugcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca aucagcaauc gaucaaauca auggaaagcu gaaccgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10756

<400> 44551
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10757

<400> 44552
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10758

<400> 44553
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10759

<400> 44554
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10760

<400> 44555

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu ucgaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10761

<400> 44556
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauua augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg aucuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua caggaaugaa gcauuaaaca aacgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10762

<400> 44557
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacg aaugugggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccuaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10763

<400> 44558
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuac uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44559
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10764

<400> 44559
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauua augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auagaaaaag aauucucaga aguagaaggg 1260

agaauucagg aucuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10765

<400> 44560
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10766

<400> 44561
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuac uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10767

<400> 44562
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuac uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10768

<400> 44563
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauauacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauua augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg aucuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10769

<400> 44564
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ggaaaugaca auagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10770

<400> 44565
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuac uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10771

<400> 44566
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauua augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auagaaaaag aauucucaga aguagaaggg 1260

agaauucagg aucuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44567
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10772

<400> 44567
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuac uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10773

<400> 44568
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44569
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10774

<400> 44569
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca aucagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10776

<400> 44570
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucagggag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacuccg 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauua augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

agcaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44571
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10777

<400> 44571
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuagcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10778

<400> 44572
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccauuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44573
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10780

<400> 44573

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ggaaaugaca auagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaua gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg acauugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10781

<400> 44574
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuagcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44575
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10782

<400> 44575
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10783

<400> 44576
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg uuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugaaaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44577
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10784

<400> 44577
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg uuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugaaaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10785

<400> 44578
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca aucagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44579
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10786

<400> 44579
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg uuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugaaaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10787

<400> 44580
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg uuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

aggauucagg accuugaaaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguuccg gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44581
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10788

<400> 44581
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca aucagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10789

<400> 44582
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca aucagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10790

<400> 44583
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg uuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugaaaa auauguugag gacacaaaga uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIJ10791

<400> 44584

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuacugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caccaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuac uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44585
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ10792

<400> 44585
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ggagaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aacaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44586
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ29347

<400> 44586
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc auaauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44587
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ29349

<400> 44587
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu gauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ29351

<400> 44588
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagauccaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

cuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44589
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ29353

<400> 44589
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gaaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuacaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggucaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ29355

<400> 44590
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc ucaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccagca agcuguaauc ccgaauaucg gaucuagauc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ29357

<400> 44591

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ggaaaugaca acagcacugc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccagca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accucgagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugccuu guuuggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ29359

<400> 44592
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcaauaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIJ29361

<400> 44593
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93623

<400> 44594
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44595
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93634

<400> 44595
augaaggcaa uacuaguagu ucuacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaaguac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcaauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIL93645

<400> 44596
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93657

<400> 44597
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44598
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93669

<400> 44598
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44599
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93681

<400> 44599
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cuuacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44600
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93692

<400> 44600
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44601
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93716

<400> 44601
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIL93728

<400> 44602

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44603
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93740

<400> 44603
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93752

<400> 44604
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacaga ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44605
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93764

<400> 44605
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugaa 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93776

<400> 44606
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93788

<400> 44607
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau acguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93812

<400> 44608
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44609
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93824

<400> 44609

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93836

<400> 44610
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44611
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93847

<400> 44611
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu ccgugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc ugcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93858

<400> 44612
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44613
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93870

<400> 44613
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93882

<400> 44614
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucagaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44615
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93894

<400> 44615
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93906

<400> 44616
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucuau uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccggga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucguc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44617
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93917

<400> 44617
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacaga ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93929

<400> 44618
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93940

<400> 44619
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uaucccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug guuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccaccccucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93951

<400> 44620
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44621
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93963

<400> 44621
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93975

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93987

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cuuacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL93998

<400> 44624
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44625
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94010

<400> 44625
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94022

<400> 44626
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94046

<400> 44627

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacaga ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94058

<400> 44628
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uagaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94069

<400> 44629
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cuuacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94080

<400> 44630
augaaggcaa uacuaguagu ucuacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44631
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94235

<400> 44631
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaucgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94247

<400> 44632
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44633
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94258

<400> 44633
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucacuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

auugggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94270

<400> 44634
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagucaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44635
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94282

<400> 44635
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94294

<400> 44636
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44637
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94306

<400> 44637
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacuccg 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44638
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIL94318

<400> 44638

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ggaaaugaca auagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucuaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44639
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94330

<400> 44639
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44640
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94354

<400> 44640
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44641
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94365

<400> 44641
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacucccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44642
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94377

<400> 44642
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugagcgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44643
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94389

<400> 44643
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuga uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uuuguauuua a 1701

<210> 44644
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94411

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcaggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcacuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauc 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44645

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44646
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguacg uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucc 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44647
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuuggggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaauuu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44648
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94458

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggac 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44649
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94470

<400> 44649
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga acuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagcg aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44650
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94481

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggaguuac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa ccagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg aucauaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94493

<400> 44651
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagcuu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94504

<400> 44652
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccugggg 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cuuacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagacg gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44653
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94515

<400> 44653
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggagca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaacu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94527

<400> 44654
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44655
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94539

<400> 44655
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIL94550

<400> 44656

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa acucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44657
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94561

<400> 44657
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaag gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44658
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94573

<400> 44658
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaauaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44659
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94584

<400> 44659
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

auaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaagaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggucuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44660
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94595

<400> 44660
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacuacug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44661
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94606

<400> 44661
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44662
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94618

<400> 44662
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44663
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94629

<400> 44663

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44664
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94640

<400> 44664
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44665
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94652

<400> 44665
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucuau uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuagaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44666
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94663

<400> 44666
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44667
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94674

<400> 44667
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44668
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94697

<400> 44668
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcaggcu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcacuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauc 1680

aggugcaaca uuugcauuug a 1701

<210> 44669
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94709

<400> 44669
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44670
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94720

<400> 44670
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaacuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44671
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94731

<400> 44671
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcaggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcacuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauc 1680

aggugcaaca uuugcauuug a 1701

<210> 44672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94743

<400> 44672
augaaggcaa uacuaguagu ucuacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu agaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga guuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugagu uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44673
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94754

<400> 44673
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuga uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugccaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIL94765

<400> 44674

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacaga ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44675
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94777

<400> 44675
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44676
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94789

<400> 44676
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44677
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94800

<400> 44677
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44678
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94811

<400> 44678
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44679
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44679
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44680
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94835

<400> 44680
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuacucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44681
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94847

<400> 44681

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacga ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIL94859

<400> 44682
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44683
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca caauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44684
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugac gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 44685
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44686
<211> 1701
<212> RNA
<213> Artificial Sequence

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44687
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94918

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44688
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94930

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagucaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44689
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94942

<400> 44689
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu aggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cggggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaguacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44690
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIL94954

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

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gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44691
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<211> 1701
<212> RNA
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugagu cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaauacc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

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<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

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augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

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ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

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gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

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<210> 44697
<211> 1701
<212> RNA
<213> Artificial Sequence

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auugagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44698
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM55904

<400> 44698
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44699
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM55915

<400> 44699

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44700
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM55926

<400> 44700
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaguaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccgucua uucaaucuag aggccuauuc ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacaaaau gccauugaca agauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcagugg guaaagaguu caaccaccug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacuguuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaagguaaga aaccaguuaa aaaacaaugc aaaggaaauu 1440

ggaaacggau gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaaaaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca gcuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44701
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM55937

<400> 44701
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM55948

<400> 44702
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44703
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM55962

<400> 44703
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44704
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM55984

<400> 44704
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacgga 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44705
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM55995

<400> 44705
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auugagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56017

<400> 44706
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggacauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44707
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56028

<400> 44707
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggacauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac gaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56039

<400> 44708
augaaggcaa uacuaguagu ucugcuauau ccauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu agaagcaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44709
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56050

<400> 44709
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gaggaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44710
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIM56061

<400> 44710

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44711
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56072

<400> 44711
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44712
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56083

<400> 44712
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44713
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56105

<400> 44713
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56116

<400> 44714
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44715
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56127

<400> 44715
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuuggguu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56138

<400> 44716
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56149

<400> 44717

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gacuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44718
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56160

<400> 44718
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacc 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44719
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56171

<400> 44719
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ucacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggagua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga uguguucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44720
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56182

<400> 44720
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca aagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44721
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56193

<400> 44721
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaagu aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56204

<400> 44722
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44723
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56215

<400> 44723
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56226

<400> 44724
augaaggcaa uacuaguagu ucugcuauac acguuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44725
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56237

<400> 44725
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga guuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggu 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56259

<400> 44726
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44727
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56270

<400> 44727
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuguaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIM56281

<400> 44728

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugagaaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44729
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56292

<400> 44729
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacggca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaauc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56303

<400> 44730
augaaggcaa uacuaguagu ucugcuauau acacuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac acaaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44731
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56314

<400> 44731
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaacgagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aaauuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44732
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56325

<400> 44732
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggc aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44733
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56336

<400> 44733
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggcaacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagauaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu acucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56347

<400> 44734
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacaaca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44735
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56358

<400> 44735

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guaaagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44736
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56369

<400> 44736
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggagcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44737
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56380

<400> 44737
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaagca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56391

<400> 44738
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44739
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56402

<400> 44739
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56413

<400> 44740
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuauauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguugaug gaugguaugg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44741
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56425

<400> 44741
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56436

<400> 44742
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg guaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acguguaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44743
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56447

<400> 44743
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa cucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56469

<400> 44744
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44745
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56480

<400> 44745
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacacu uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIM56491

<400> 44746

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44747
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56502

<400> 44747
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacuuua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgguaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagucaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaguaugu aaaaagcaca aaauugagac uggcaacagg auugaggaau 1020

aucccgucua uucaaucuag aggccuauuc ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaaaag cacacaaaau gccauugaca agauuacuaa caaaguaaac 1200

ucuguuauug aaaagaugaa uacacaguuc acagcagugg guaaagaguu caaccaccug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacuguuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaagguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaaaaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca gcuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56513

<400> 44748
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44749
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56524

<400> 44749
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaauccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auacgcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgaugac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaagaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44750
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56535

<400> 44750
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agauggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44751
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56546

<400> 44751
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56557

<400> 44752
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc acaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56568

<400> 44753

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau ucuccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56579

<400> 44754
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccacaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacgagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aauacagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugagcuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagacac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug caaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44755
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56590

<400> 44755
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uggccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaguaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccgucua uucaaucuag aggccuauuc ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uacgcagccg accugaagag cacacaaaau gccauugaca agauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcagugg guaaagaguu caaccaccug 1260

gaaaaaagaa uagagaauuu aaauaagaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacuguuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaagguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgaugaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaagaagcaa aauuaaacag agaaaaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca gcuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44756
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56601

<400> 44756
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaguaugu aaaaagcaca aaauugagac uggccacagg guugaggaau 1020

gucccaucua uucaaucuag aggccuauuc ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacaaaau gccauugaca aaauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcagugg guaaagaguu caaccacuug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacugcuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaagguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaaaaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca gcuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44757
<211> 1710
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56612

<400> 44757
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaguaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccaucua uucaaucuag aggccuauuc ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacaaaau gccauugaca aaauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcagugg guaaagaguu caaccacuug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacugcuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaagguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaaaaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca gcuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56623

<400> 44758
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaacaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56634

<400> 44759
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aauucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuacua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaggca aaauuaaaca gagaaaaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguucg 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44760
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56645

<400> 44760
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaguaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccgucua uucaaucuag aggccuauuc ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accagaagag cacacaaaau gccauugaca agauuacuaa caaaguaaac 1200

ucuguuauug aaaagaugaa uacacaguuc acagcagugg guaaagaguu caaccaccug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacuguuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaagguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaaaaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca gcuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56656

<400> 44761
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccacccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacauua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa auauaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuugcca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56667

<400> 44762
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucugguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56678

<400> 44763
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uacccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIM56689

<400> 44764

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaggaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44765
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56700

<400> 44765
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

ucuuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44766
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56711

<400> 44766
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uacccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

ggcauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaguaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccaucua uucaaucuag aggccuauuc ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacaaaau gccauugaca aaauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcagugg guaaagaguu caaccacuug 1260

gaaaaaagaa uagagaauuu aaauaaaaaa guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacugcuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaagguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaaaaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca gcuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56722

<400> 44767
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaggaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56733

<400> 44768
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

ucuuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56744

<400> 44769
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgacaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgcaaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56755

<400> 44770
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccagucaug acucgaacaa aggugugacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuug a 1701

<210> 44771
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56766

<400> 44771

augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accagcaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu caccagccuc ccauuucaga auauacaucc gaucacaauu 960

ggaaaauguc caaaguaugu aaaaagcaca aaauugagac uggccacagg auugaggaau 1020

gucccaucua uucaaucuag aggccuauuc ggggccauug ccggcuucau ugaagggggg 1080

uggacaggga ugguagaugg augguacggu uaucaccauc aaaaugagca ggggucagga 1140

uaugcagccg accugaagag cacacaaaau gccauugaca aaauuacuaa caaaguaaau 1200

ucuguuauug aaaagaugaa uacacaguuc acagcagugg guaaagaguu caaccacuug 1260

gaaaaaagaa uagagaauuu aaauaaaaag guugaugaug guuuccugga cauuuggacu 1320

uacaaugccg aacugcuggu ucuauuggaa aaugaaagaa cuuuggacua ccacgauuca 1380

aaugugaaga acuuguauga aaagguaaga aaccaguuaa aaaacaaugc caaggaaauu 1440

ggaaacggcu gcuuugaauu uuaccacaaa ugcgauaaca cgugcaugga aagugucaaa 1500

aaugggacuu augacuaccc aaaauacuca gaggaagcaa aauuaaacag agaaaaaaua 1560

gaugggguaa agcuggaauc aacaaggauu uaccagauuu uggcgaucua uucaacuguc 1620

gccaguucau ugguacuggu agucucccug ggggcaauca gcuucuggau gugcucuaau 1680

gggucucuac aguguagaau auguauuuaa 1710

<210> 44772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56777

<400> 44772
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaggcaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauaucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44773
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56788

<400> 44773
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56799

<400> 44774
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44775
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIM56810

<400> 44775
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44777
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaagacagu ugaccuuggu caauguggac uacuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc uggaaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aagagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcagg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaag 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

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<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccauaacg gaaagcuaug caaacuaaac 180

ggaauuccuc cacuugaacu aggggauugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agauacaguu uguguuaucc aggcagcuuc aaugacuaug aagaauugaa acaucuccuc 360

aguagcguaa aacacuucga gaaaguaaag auucugccaa aagauggaug gacacagcau 420

gagacagaug gagguucaaa ggccugcgca gugucaggua aaccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaccuaau uauccgguug ccaaaagauc guacaacaau 540

acgagcggag agcaaaugcu aauaauuugg ggagugcacc auccuaauga ugaggcagaa 600

caaagagcau uguaccagaa cgugggaacc uauguuuccg caagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcagcaagg ccuaaaguga guggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggaugugugg gacaccauaa guuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaag 840

acagaaggaa cacuugggaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaucca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga ccaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggc 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugacag aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agaaaagacu ggaaaacuug 1260

aacaaaaaga uggaagaugg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ccuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucauaaau gugacgauga augcaugaau agugugaaaa augggacgua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaagaga aaugaaauca aaggggugaa auugagcagc 1560

augggguuu accaaauucu ugccauuuau gcuacaguug cagguucucu gucacuggca 1620

aucaugauag cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 44779
<211> 1689
<212> RNA
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<220>
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcaacaagg ccuaaaguga auggacuagg agguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

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acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcaucuga 1689

<210> 44780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIR93971

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaagaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca cuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua ggggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg guaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggagaaaaga 1260

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gaacuguugg uucuguuaga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaaggugag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44781
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIR93982

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaaugggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaagaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguucac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaauua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AIR93993

<400> 44782

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu guggaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cuaaugcugg aucaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauca augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaaggaagaa uggauuauua cuggacacua guagagccgg gagauaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa uacuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaca caauuuguca aacacccaag 900

ggagcuauaa auaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucgguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaucu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagucaauua aaaaacaaug ccaaggaaau uggaaaaggc 1440

ugcuuugaau uuuaccacaa augcgauacc augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44783
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIR94000

<400> 44783
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagcuu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugcuauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaccaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44784
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIR94116

<400> 44784
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg auuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau ugucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaaga 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaacuga cacaacaacg aguguggcaa cagaagagau aaauaggacu 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc ggggcaaaca cugcgaauaa aaucuaaugg gaauuuaaua 780

gcuccauggu augggcacau ucuuucagga gagagccaug gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaga agggugggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua uagaucauga auucaaugag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gagaaccaga aaacacucga ugagcaugau gcaaacguaa acaaucuaua uaauaaagug 1380

aagagggcau uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaauag aaggaaauau 1500

caagaggagu caaaauuaga aagacagaag auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 44785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIT38333

<400> 44785
augaagacua ucauuacuuu gagcuacauu uuaugccaug uuuucgcuca aaaaauccac 60

ggaagugaca gcagcacggc aacauugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacaaa ugaccaaauu gaagugacua augccacuga gcugguucag 180

aguuccucaa cagguagaau augcgacaau ccucaccgaa uccuugaugg gaaaaacugc 240

acauugauag augcucuauu aggagacccu cauugcgacg aauuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaugcuuac agcgacuguu acccuuauua ugugccggau 360

uaugccucuc uuaggucacu aguugccuca uccggcacgu uggaguuuaa caaugaaagc 420

uucaauugga cuggaaucuc ucaggaugga acaagcucuu ccugcagaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacggguuag aauacaaaua cccagcacaa 540

aaugugacua ugcuaaacaa ugacgaauuu gacaaauugu auauuugggg gguucaccau 600

ccgaguacgg acagugacca aaccagccua uauguucaaa caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

gguaucucca gcagaauaag cauccauugg acaauaguaa aaccuggaga uauacuuuug 780

auuaacagca cagggaaucu aauugccccu agggguuacu uuaaaauacg aggugggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugcg auucugaaug cgucacucca 900

aaugggaaua uucccaauga caaaccauuu caaaauguga acaggaucac auaugggccc 960

ugucccagau auauuaagca aaacacccug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcgu auugggcgcu aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag augguuggua cgguuucagg caucagaauu cagagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa cgaacgagaa guuccaucaa auagaaaaag aauucucaga gauagaaggg 1260

agaguucagg accucgagaa guauguugaa gacacuaaaa uagaucucug gucguacaac 1320

gcagagcuuc uuguuguccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuauguac augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuua agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gugcuguuuu gcugggguuc aucacguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 44786
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIT38344

<400> 44786
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uguauaggcu accaugccaa caacucaacc gacacuguug acacagugcu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaagacagcc acaauggaaa acuaugucua 180

cuaagaggaa uagccccccu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaaa augggacaug uuacccaggg uauuucgccg acuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gaguucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccu auaaugggaa aggaaauuuu 480

uacaaaaauu ugcuauggcu gacgaggaag aaugggguugu acccaaaccu gagcaaguca 540

uauacaaaca acaaagagaa agaaguccuu auacuauggg guguucauca cccgucaaac 600

auaaaggacc aaaggacucu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua accaaaaggc ccaaaguaag agaucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccggug auacaauaau auuugaggca 780

aacggaaauc uaauagcgcc augguaugcu uucgcauuga guagaggcuu uggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaagcaa aaugucaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccuuccauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggguug gacuggaaug 1080

auagauggau gguaugguua ccaccaucag aaugagcaag gaucugguua ugcugcagau 1140

aaagaaagca cacaaaacgc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac aacugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa acaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuagauuucc acgacucuaa uguaaaaauu 1380

cuguaugaga aaguaaagag ccaauuaaag aauaaugcca aagaaauugg aaaugggugu 1440

uuugaauucu accacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuacccaa aauauucuga agaaucaaag uuaaacaggg aaaaaaucga uggaguaaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuauu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 44787
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIT38360

<400> 44787
augaaaauaa aacuacuaau ccuguuaugu acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugccaa caacucaacc gacacuguug acacagugcu ugagaagaau 120

gugacaguga cacacucugu caaccuacuu gaagacaguc acaauggaaa acuaugucua 180

cuaaaaggaa uagccccccu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu gauuuccaag gaaucauggu ccuacauugu agaaaaacca 300

aauccugaaa augggacaug uuacccagga uauuucgccg auuaugagga gcuaagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga gagcucaugg 420

cccaaccaca ccguaaccgg aguaucagca ucaugcuccu auaaugggaa aggaaauuuu 480

uacaaaaauu ugcuauggcu gacgaggaag aauggguugu acccaaaccu gagcaaguca 540

uauacaaaca acaaagagaa agaaguccuu auacuauggg guguucauca cccgucaaac 600

auagaggacc aaaggacucu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua accaaaaggc ccaaaguaag aggucaggaa 720

ggaagaauca acuacuacug gacucugcug gaacccggug auacaauaau auuugaggca 780

aacggaaauc uaauagcgcc augguaugcu uucgcauuga guagaggcuu aggaucagga 840

aucaucaccu caaaugcacc aauggaugaa ugugaagcaa aaugucaaac accucgggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau ccccucuauc 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggguug gacuggaaug 1080

auagauggau gguaugguua ccaccaucag aaugagcaag gaucugguua ugcugcagau 1140

aaagaaagca cacaaaacgc cauuaacggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac aacugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuaa acaaaaaagu ugaugauggg uuucuagaca uuuggacaua uaaugcagaa 1320

uuguugguuc uacuggaaaa ugaaaggacu uuagauuucc acgacucuaa uguaaaaaau 1380

cuguaugaga aaguaaagag ccaauuaaag aauaaugcca aagaaauugg aaaugggugu 1440

uuugaauucu accacaagug uaacaaugaa ugcauggaga gugugaaaaa uggaacuuau 1500

gacuacccaa aauauucuga agaaucaaag uuaaacaggg aaaaaaucga uggaguaaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuauu caacugucgc caguucccug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuga 1698

<210> 44788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIT93147

<400> 44788
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac gaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44789
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIU39700

<400> 44789

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuua uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIU39702

<400> 44790
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuagugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagcuu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44791
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIU39704

<400> 44791
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cucuacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguauugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44792
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIU46609

<400> 44792
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auugguuacc augcaaacaa cucgacggag cagguugaca cgauaaugga aaagaacguc 120

acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgauuua 180

aauggaguga agccucuaau uuuaaaggau uguaguguag cuggauggcu ucucggaaac 240

ccaaugugcg acgaauucau cagggugccg gaauggucuu acauaguaga aagggcuaac 300

ccagccaaug accucuguua cccagggaac cucaaugauu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cugaucaucc ccaagaguuc uuggaccaau 420

caugaaacau cauuaggggu gagcgcagca ugcccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac gaugcauacc ccacaauaaa aauaagcuac 540

aauaauacca aucaggaaga ucuguugaua cugugggggа uucaccauuc caacaaugca 600

gcagagcaga cgaaccucua uaaaaaccca accaccuaca uuuccguugg gacaucaaca 660

uuaaaccaga gauugguacc aaaaauagcu acuagauccc aagugaaugg acagcgugga 720

agaauggauu ucuucuggac aauucuaaaa ccgaaugaug caauccauuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aaguggaaua uggccacugc aacaccaaau gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ucacaauaua cacccucuca ccaucgggga augccccaaa 960

uacgugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

aagagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag auggcuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccaccca aaaggcuaua gauggaguua ccaauaaggu caacucgauu 1200

auugacaaaa ugaacacuca auuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc uaguucucau ggaaaaugag agaacucuag auuuccauga cucaaauguc 1380

aagaaccuuu acgauaaagu ccgacuacag cuuagggaca augcaaagga gcuggguaau 1440

gguuguuuug aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaauggg 1500

acauaugacu acccgcaaua uucagaagaa gcaagauuaa aaagagaaga aauaagcgga 1560

gugaaauuag agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucccuagcac uggcaaucau aguggcuggu uuaucuuuau ggaugugcuc caaugggucg 1680

uugcagugca gaauuugcau uuaa 1704

<210> 44793
<211> 1689
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIU46714

<400> 44793
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ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccauaacg gaaagcuaug caaacuaaac 180

ggaauuccuc cacuugaacu aggggauugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa ugguccuaua uaauggaaaa agaaaacccg 300

aaauacaguu uguguuaucc aggaagcuuc aaugacuaug aagaauuaaa acaucuccuc 360

aguagcguaa aacacuucga gaaaguaaag auucugccaa aagauggaug gacacagcau 420

aagacagaug gagguucaaa ggccugcgca guuucaggua aacaaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggacaaaau uauccgguug ccaaaagauc guacaacaau 540

acgagcggag agcaaaugcu aauaauuugg ggagugcacc auccuaauga ugaggaggaa 600

caaagagcau uguaccagaa agugggaacc uauguuuccg caagcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcagcaagg ccugaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggaugugugg gacaccauaa auuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucauaaag 840

acagaaggaa cacuugggaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaug uuccucagau ugaaucaaga 1020

ggauuguucg gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugacag aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc agcaacuuag agagaagacu ggaaaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga acuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ccuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucauaaau gugacaauga augcaugaau agugugaaaa augggacgua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaagaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu accaaauucu ugccauuuau gcuacaguug cagguucucu gucacuggca 1620

aucaugauag cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 44794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIV09219

<400> 44794
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu ggaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacaaca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuaccccgga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcaugcc cucaugcugg ggcaggaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aagggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag gcucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gggacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca cuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua ggggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg guaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gacaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauuaga aaaugaaaga accuuggacu aucacgauuc aaaugugaag 1380

aacuuauaug aaaaggugag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIW60689

<400> 44795
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcgacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagcaua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gggaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugccccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu augagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugcaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44796
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIW60690

<400> 44796
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcgacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gggucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugccccu cgggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu augagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugcaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIW60691

<400> 44797
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaag caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcgacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagacua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gggaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugccccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIW60692

<400> 44798
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ggaaaugaca acagcacggc aacgcugugc cugggacacc augcagugcc aaacggaacg 120

cuagugaaag caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acacugauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagcuuac agcgacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu aguugccuca uccggcaccc uggaguuuac caaugaaggc 420

uucaauugga cuggagucgc ucaggaugga acaagcuaug cuugcaaaag gggaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uauguucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gggaucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugccccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaacugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccuuuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AIW60693

<400> 44799
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cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagcaua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca acggaaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aauuccucaa cagguagaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuauu 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaccagccua uaugcucaag caucagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca acggaaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaggaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc cuggggcacc augcagugcc aaacggaacg 120

cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucgc ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa acuacaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagcaua uaugcucaag caccagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacugca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggguaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugucuu gcugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<212> RNA
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cuagugaaaa caaucacgaa ugaccaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaccaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuccaaaa uaaggaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucga ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug caccaauuaa aauacaaaua cccagcacug 540

aacguggcua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acagugacca aaucagccua uaugcucaag caccagggag agucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cuggguaagg 720

ggugucucca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacugca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaggucaga ugcauccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca acgggaaacu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa auugaaaaag aauucucaga aguggaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucguacaac 1320

gcggagcuuc uuguugcccu ggagaaccag cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugucuu gcugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

agaugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucuu cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggauacgg acagugucca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

caugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucgauugga cuggagucac ucagaaugga acaagcucug cuugcaaaag gagaucuaau 480

aaaaguuucu uuaguagauu gaauugguug acccacuuaa aauacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acagugacca aaucagccua uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucucca gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaccaaauca augggaaacu gaauagguua 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggguucaau cagaaaugga 1500

acuuaugacc augaugugua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua uaaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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ggaaaugaca acagcacggc aacgcugugc auugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaugacca aaucagccua uaugcucaag caucaggaaa aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaaaagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuuccgg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaagaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIW60700

<400> 44806
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ggaaaugaca acagcacggc aacgcugugc auugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaagcucug cuugcaaaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucagccua uaugcucaag caucaggaaa aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauccagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaagaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44807
<211> 1701
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__AIW60701

<400> 44807

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 44808
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIW60702

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc caggguaagg 720

aauauccccа gccgaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auaugggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44809
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIZ07211

<400> 44809
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AIZ07212

<400> 44810
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuaa agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44811
<211> 1683
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJD78175

<400> 44811
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aucugcaucg gcuaccaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauucua gacacuugua ccauugaagg auuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug cuaacggauu guguuauccc gggaauguag aaaaucuaga agagcuaaga 360

ucacuuuuua guucugcuag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaagca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cacuuacccu auucaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggcaua aaucacccac ccacugauac ugcgcagaca 600

aaucuguaca caagaaccga cacaacaacg aguguggcaa cagaagagau aaauaggacu 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaauuuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaga agggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua uagaucauga auucaaugag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gagaaccaga aaacacucga ugagcaugau gcaaacguaa acaaucuaua uaauaaagug 1380

aagagggcau uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaauag aaggaaauau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 44812
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJD78187

<400> 44812
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uagacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaccc ucuuauucua gacaccugua ccauugaagg guuaaucuau 240

ggcaauccuu cuugugaucu auuguuggga ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuauccc gggaauguag aaaaucuaga agaacuaaga 360

ucacuuuuua guucugccag gucuuaucaa aggauccaga uuuucccaga cacaaucugg 420

aaugugucuu acagugggac aagcaaaaca uguucagauu cauucuacag aagcaugaga 480

ugguugacuc aaaaggacaa cgcuuacccu auccaagacg cccaauacac aaauaaucaa 540

ggaaagaaca uucuuuucau gugggggcaua aaucacccac ccacugauac uacgcagaca 600

aaucuguaca caagaaccga cacgacaacg aguguggcaa cagaagagau aaauaggacu 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauuaauuau 720

uauuggucgg uauuaaaacc gggucaaaca cugcgaauaa aaucuaaugg gaauuugaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaaaaggg guagcugcac aguacaaugu cagacagaga aggguggcuu aaacacaaca 900

uugccauucc aaaaugugag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggauu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaacauag ucgacaaaau gaacaagcag 1200

uaugaaauua uagaucauga auucagugag guugaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca agauauaugg gcauauaaug cagaauuguu aguucugcuu 1320

gagaaccaga aaacacucga ugagcaugau gcaaacguaa acaaucuaua uaauaaagug 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaauggga ccuacaauag aaggaaauau 1500

caagaggagu cgaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 44813
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44813
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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu aucgcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcacagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc ggaagaacgg cgauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggcaua aaucacccac ccaccgauac uacacagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucug uauugaaacc gggucagaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

cugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu guugccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 44814
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AJD78211

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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu aucgcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcacagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaaugg cgauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacacagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucug uauugaaacc gggucagaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

uuaaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

cugccauuuc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagccuca aacuugcagu uggucugagg aaugugccuu cuagaucuag aagaggacua 1020

uucggggcca uagcaggguu uauagaagga gguuggucag gacuaguugc ugguugguau 1080

ggauuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu guugccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 44815
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI76401

<400> 44815
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ggauaccaug ccaauaauuc cacagaaaag gucgacacaa uucuagagcg gaaugucacu 120

gugacucaug ccaaggacau ccuugagaag acccacaacg gaaagcuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuucu uggaaaucca 240

gaaugugaua ggcuucuaag ggugccagaa uggucauaua uaauggaaaa agaaaaccca 300

agauacaguu uguguuaccc aggcagcuua aaugacuaug aagaauugaa acaucuccuc 360

agcagcguaa aacauuucga gaaaguaagg auccugccca aagauagaug gacaaaucau 420

acaacaacug gagguucaaa ggccugcgca gugucaggua aaccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaccaaau uauccggucg ccaaaggauc guacaacaau 540

acgagcgggg agcaaaugcu aauaauuugg ggggugcacc auccuauuga ugaggcagaa 600

caaagagcau uguaccagaa cgugggaacc uauguuuccg caagcacauc aacauuguac 660

aaaaggucaa ucccugaaau agcagcaagg ccugaaguga auggacuugg aaguagaaug 720

gaauucucuu ggacccucuu ggauguaugg gacaccauaa auuuugagag cacugguaau 780

cuaguugcac cagaguaugg auucaaaaua ucaaaaagag guaguucagg gaucaugaag 840

acagaaggaa cacuugggaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacacuac cuuuucacaa uguccaccca cugacaauag gugaaugccc caaauaugua 960

aaaucggaga aauuggucuu agcaacagga cuaaggaaug uuccccaaau ugaaucaaga 1020

ggauuguuug gggcaauagc uggcuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaccacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaaag cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aauaacuuag agaaaagacu ggagaacuug 1260

aacaaaagga uggaagacgg guuccuagau guguggacau auaaugcuga gcuucuaguu 1320

cugauggaaa augaaaggac acuugacuuc caugauucua auguaaaaaa ccuguaugaa 1380

aaagucagaa ugcagcugag agacaacguc agagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugacgauga augcaugaau agugugaaaa acggaacaua ugauuauccc 1500

aaguaugaag aagaaucuaa acuaaagaga aaugaaauca aagggguaaa auuaagcagc 1560

augggggguu accaaauucu ugccauuuau gcuacaguug cagguucucu gucacuggca 1620

aucaugguag cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcagaauc 1680

ugcauauga 1689

<210> 44816
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80137

<400> 44816
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44817
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80149

<400> 44817
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca ggcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau augucaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagagguau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaggca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucaag accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44818
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJI80161

<400> 44818

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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44819
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80172

<400> 44819
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

ucacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44820
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80196

<400> 44820
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauauaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggaguuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44821
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80208

<400> 44821
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacaga ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44822
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80220

<400> 44822
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucagaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44823
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80232

<400> 44823
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

ucacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacccca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44824
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80244

<400> 44824
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucagaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44825
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80256

<400> 44825

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44826
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80268

<400> 44826
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44827
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80280

<400> 44827
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaaggaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

aggauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44828
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80292

<400> 44828
augaaggcaa uacuaguagu ucuacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44829
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80303

<400> 44829
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacaga ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44830
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80315

<400> 44830
augaaggcaa uacuaguagu ucuacuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaag ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccac caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44831
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80326

<400> 44831
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaaaaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80337

<400> 44832
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucuau uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaugu uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcaaaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaucaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44833
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80348

<400> 44833
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucagaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44834
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80360

<400> 44834
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

gggauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44835
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80372

<400> 44835
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44836
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJI80384

<400> 44836

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44837
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80395

<400> 44837
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80406

<400> 44838
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44839
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80417

<400> 44839
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80428

<400> 44840
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccag gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44841
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AJI80439

<400> 44841
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80462

<400> 44842
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugag gcauugaaca accgguucca gaucaaggga 1560

guugaguuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44843
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80474

<400> 44843

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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucuau uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44844
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80485

<400> 44844
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucuau uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44845
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80496

<400> 44845
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44846
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80507

<400> 44846
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagcccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaagu uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44847
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJI80518

<400> 44847
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uguauagguu aucaugcgaa caauucaaca gacacuguag auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcaucca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaaaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caauguagaa uauguauuua a 1701

<210> 44848
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98765

<400> 44848
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98777

<400> 44849
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuucucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gauaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgauucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98789

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98801

<400> 44851
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaga caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaaa caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98813

<400> 44852
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaguc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98825

<400> 44853
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagaca cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJJ98837

<400> 44854

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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacggag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44855
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44855
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaagucacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaagua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacu cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca acgggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaau 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98861

<400> 44856
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

auuuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugaaaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaccaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44857
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccucac uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auucuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98885

<400> 44858
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gaggucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa agaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaaucuacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44859
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gaaaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaua accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98909

<400> 44860
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugu 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccuggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccaaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98921

<400> 44861

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ggaaaagaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga acugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaagugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucaa gcaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98933

<400> 44862
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu gcguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98945

<400> 44863
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98957

<400> 44864
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacucaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44865
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98969

<400> 44865
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

aguucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44866
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98981

<400> 44866
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaua uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauguccccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauaac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ98993

<400> 44867
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacaau ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcaugag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99005

<400> 44868
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga uuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugag aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44869
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99017

<400> 44869
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu aggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc ucguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44870
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99029

<400> 44870
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuua uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccauuuaa aauucaaaua cccagcauug 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44871
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99041

<400> 44871
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cgggagucac ucaaaaugga acaagcucug cuugcaaaag gggaucugau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucuggaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auaugggcc 960

uguccagau auguuaagca aagcacccug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggcua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 44872
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJJ99053

<400> 44872

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44873
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99065

<400> 44873
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44874
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99089

<400> 44874
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaaa caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44875
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99101

<400> 44875
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcaugag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaaga 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44876
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99113

<400> 44876
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44877
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99125

<400> 44877
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacca augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuagu 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accguuucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44878
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<212> RNA
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu gaauugguug acccacuuga acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaag caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaguaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugcaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag gggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaguaucgau cagaaaugga 1500

acuuaugacc acgaugugua cagagaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcucu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<210> 44879
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44879

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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguucaucaa caggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga uaugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa acuucaaaua ccaagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaagacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc ccgaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugccuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga ccggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca acucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44881
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcaacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

agcaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaaaca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac gaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca gaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44882
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44882
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cugggucac ucaaaacgga acaagcucug cuugcauaag gaaaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagagcaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44883
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99197

<400> 44883
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaac 480

aauaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcccaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauauug gaucuagacc cagaguaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaac aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44884
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44884
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auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa cagguggaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cgggagucac ucaaaaugga acaagcucug cuugcaaaag gaaaucugau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaagaauuu gacaaauugu acauuugggg gguucaccac 600

ccggggacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccuggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acagaaucac auaugggggcc 960

uguccccagau auguuaagca aagcacccug aaauuggcaa cagggaugcg aaauguaccg 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc aaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagaugaa gcauuaaaca accgguucca gaucaaaggc 1560

guugagcuga agucaggcua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44885
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99221

<400> 44885
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccaaauaucg gaucuagacc cagaguaagg 720

aauauccccа gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa acgcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99233

<400> 44886
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccc 60

ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccaaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga agucgaaggg 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa acgcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99244

<400> 44887
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

gguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu aagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauuugcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgcuaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99255

<400> 44888
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaauc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

agcucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugaugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaaggaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44889
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99267

<400> 44889
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacagugcu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc guuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccauaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacuauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggacaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag uaacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggaguuua ucagauucua gcgaucuacu caacggucgc caguucucug 1620

guucuuuugg ucucccuggg ggcagucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaguau gcaucuaa 1698

<210> 44890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJJ99278

<400> 44890

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uguauagguu aucaugcgaa caauucaaca gauacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99289

<400> 44891
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuauaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44892
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99301

<400> 44892
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaaucacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44893
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99324

<400> 44893
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccagga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aguggguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99335

<400> 44894
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucaaaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc ccaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99357

<400> 44895
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99368

<400> 44896
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu cauacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaccaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag gaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99379

<400> 44897

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99390

<400> 44898
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagaggag uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugc 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44899
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99401

<400> 44899
augaaggcaa uacuaguagu ucugcuauau acauuugcaa cugcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44900
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99413

<400> 44900
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauc ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaaaacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcauc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguaggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44901
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99425

<400> 44901
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguaggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44902
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99437

<400> 44902
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagagag 360

caauugaguu caguaucuuc auuugaaagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaagccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aacaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44903
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99449

<400> 44903
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugaaga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aaugggguaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccaa agaaucaaag uuaaacaggg agaaaauuga cggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44904
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99461

<400> 44904
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc guuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacuauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggacaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag uaacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucua gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99483

<400> 44905
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

agcucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aaaauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99494

<400> 44906
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga guuuucaucg auuaugagga gcuaagagag 360

caauuaagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucc 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44907
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99505

<400> 44907
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acgauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaaaauaca gcaagaaguu caagccggaa auagcaguaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagggu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44908
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJJ99516

<400> 44908

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44909
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99527

<400> 44909
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

agcucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aacauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugucaucgac aaaauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99538

<400> 44910
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga acuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagaucacua acaaaguaaa uucaguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa agucgaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44911
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99549

<400> 44911
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uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac augugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugc cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44912
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99560

<400> 44912
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaagacaagc auaacgggaa acuaugcaag 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagagaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaaaauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uuaguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44913
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99571

<400> 44913
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auauacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99582

<400> 44914
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44915
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99593

<400> 44915

auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44916
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99604

<400> 44916
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuagga 240

aauccagaau gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccagagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44917
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99616

<400> 44917
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccggga cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcuaacc aaaagacccu cuaccauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauuaac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44918
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99628

<400> 44918
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44919
<211> 1698
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99640

<400> 44919
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcuaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccguugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44920
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99652

<400> 44920
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44921
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99664

<400> 44921
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagca uugccgggug gaucuuagga 240

aauccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaauauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 44922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99675

<400> 44922
augaaggcaa uacuauuagu ucugcuauau acauuugcaa ccgcaaaggc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

agcucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aaaauuaccg acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99686

<400> 44923
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

agcucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aaaauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguuag uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44924
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99697

<400> 44924
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga acuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucguaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucaguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaguacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44925
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99708

<400> 44925
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga acuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggga aucuaguggu accgagauau gcauucguaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucaguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaguacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJJ99719

<400> 44926

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcu 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agagggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44927
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99730

<400> 44927
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua auagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gguggguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uucaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99741

<400> 44928
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44929
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99752

<400> 44929
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99763

<400> 44930
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacuucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaaca gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44931
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99775

<400> 44931
augaaaguaa aacuauuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauugcu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guucuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aacggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcauuuaa 1698

<210> 44932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99786

<400> 44932
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaaac auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucagcugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44933
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99798

<400> 44933

augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gauacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaagacca 300

aauccugaaa auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca uccgccaaac 600

auagcuaacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau guuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaacggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44934
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99810

<400> 44934
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaccaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggge aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

ugcagaauau gcaucuaa 1698

<210> 44935
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99822

<400> 44935
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auucgagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uuugcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaauauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauucauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99833

<400> 44936
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

agcucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauaccuaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu cgugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aaaauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44937
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99844

<400> 44937
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44938
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99855

<400> 44938
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauagc acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44939
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99866

<400> 44939
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augacaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99877

<400> 44940
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucac aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugagg 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44941
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99888

<400> 44941
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaga ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aauugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99899

<400> 44942
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguauu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa ccucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cuugugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua uuagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugggc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccguugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44943
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99910

<400> 44943
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga acuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggaauuca ucauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucaguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaac uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJJ99921

<400> 44944

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

cccaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaccaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44945
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99932

<400> 44945
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaaugugaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99943

<400> 44946
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu accaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99954

<400> 44947
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaaag uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacagag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca cuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaacugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacagga 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucuuua 1680

caguguagaa uauguauuua a 1701

<210> 44948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99965

<400> 44948
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44949
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJJ99989

<400> 44949
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaggaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gagaaugcuu augucucugu agugucuuca 660

cauuauagca aaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggagggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaagaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaagaaug 1260

gaaaauuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcca aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00001

<400> 44950
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

agcucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agaaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagggaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugccg accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caaaccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44951
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00012

<400> 44951

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu acauuuggga aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucaa aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aacaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc gaaugugaag 1380

aacuuauaug aaaagguaag aaaccaauua aaaaacaaug ccaaggaaau uggagauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguuaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44952
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00023

<400> 44952
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cucacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcgggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

agcucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucgugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuauuggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggagccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccaucgac aagauuacca acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uuuuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

cugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44953
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00034

<400> 44953
augaaggcaa uacuaguagu uaugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaaac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaggc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucguacuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44954
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00045

<400> 44954
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44955
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00056

<400> 44955
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg acagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaugau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44956
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00067

<400> 44956
auggaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucau aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44957
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00079

<400> 44957
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aacugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aaacaguuuu 480

uacagaaauu ugcuauggcu gacgaggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagcugacc aaaagacccu cuaucauaca gaaaaugcuu auguuucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaagga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcagugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugaugga uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucucuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44958
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00091

<400> 44958
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacagugcu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc guuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccauaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugucc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacuauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggacaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag uaacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggaguuua ucagauucua gcgaucuacu caacggucgc caguucucug 1620

guucuuuugg ucucccuggg ggcagucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaguau gcaucuaa 1698

<210> 44959
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00103

<400> 44959
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacagugcu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc guuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacuauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggacaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag uaacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaugugggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucua gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuaa 1698

<210> 44960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00114

<400> 44960
augaaggcaa uacuaguagu ucugcuauau acauuagcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc augacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaug caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00125

<400> 44961
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagagg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaauucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accagucuac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44962
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AJK00136

<400> 44962

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcgauaa acacaagccu accauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gcugguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44963
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJK00166

<400> 44963
auggagaaaa uagugcuucu ucuugcaaua gucagccuug uuaaaaguga ucagauuugc 60

auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uuuaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaaagcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggga uucaucauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacacaaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcc 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 44964
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AJK00177

<400> 44964
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acuguuacac augcccaaga uauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggguggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau cucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu cauuaggggu gagcucagca uguccauacc agggaacacc cuccuuuuuc 480

agaaaugugg uauggcuuau caagaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaaugaugag 600

gcagagcaga uaaagcucua ccaaaaccca accaccuaug uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

agaauggauu ucuucuggac aauuuuaaaa ccggacgaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca cuaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugca acuggacuca gaaauagucc ucuaagagaa 1020

aaaagaagaa gaaaaagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca augaacaggg gagugguac 1140

gcugcugaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacuca 1200

aucauugaca aaaugaacac ucaguuugaa gccguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag agaauuuaaa caagaaaaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuucca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggaacugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau gcauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaauuuac caaauacugu cgauuuauuc aacaguugcg 1620

aguucucuag cauuggcaau caugguggcu ggucuaucuu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 44965
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AJK00188

<400> 44965
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acuguuacgc augcccaaga uauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau cucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu cauuaggggu gagcucagca uguccauacc agggaacacc cuccuuuuuc 480

agaaaugugg uauggcuuau caagaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggggа uucaucauuc uaaugaugag 600

gcagagcaga uaaagcucua ccaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

agaauggauu ucuucuggac aauuuuaaaa ccggacgaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca cuaucgggga augccccaaa 960

uauguaaaau caaacaaauu aguccuugca acuggacuca gaaauagucc ucuaagagaa 1020

aaaagaagaa aaagaggacu auuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcugacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaagcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga acuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugca uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucga uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 44966
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44966
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccuuugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauuuau caaugugcca gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccguauc agggaacgcc cucuuuuuuc 480

aggaauguag uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaacacca gccaggaaga ucuguuggua cugugggggga uucaccauuc uaaugaugcg 600

acagaacaga ugaagcucua ucaaaaccca accaccuaug uuuccguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ucgaaugaug caaucaacuu cgaaagcaau 780

gggaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc agcaccaagu gucaaacucc gauaggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

aggagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauaguaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccaccca aaaggcaaua gauggaguca ccaauaaggu caacucuauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag aggacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cugagggaua auacaaagga gcuggguaac 1440

gguugcuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauuagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcgc uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 44967
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AJK00218

<400> 44967
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auugguuacc augcaaacaa cucaacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccuuugau uuuaagagau uguaguguag cuggauggcu ucucggaaac 240

ccaaugugug acgaauuuau caaugugcca gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cggaucaucc ccaaaaguuc uuggcccgau 420

caugaagccu caucaggggu gagcucagca uguccguauc agggaacgcc cucuuuuuuc 480

aggaauauag uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaacacca gccaggaaga ucuguuggua cugugggggga uucaucauuc uagugaugcg 600

acagaacaga uaaagcucua ucaaaaccca accaccuaug uuuccguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ucgaaugaug caaucaacuu cgaaaguaau 780

gggaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc agcaccaagu gucaaacucc gauaggggcg 900

auaaacucua guaugcccuu ccacaauaua cacccccuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

aggagaagga aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauaguaaug agcaggggag uggauacgcu 1140

gcagacaaag aauccaccca aaaggcaaua gauggaguca ccaauaaggu caacucuauc 1200

auugacaaaa ugaacacuca guuugaggcc guugggaggg aauucaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag aggacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccggcuacag cugagggaua augcaaagga gcuggguaac 1440

gguugcuuug aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauuagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac agcugcgagu 1620

ucucuagcgc uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 44968
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AJK00239

<400> 44968
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccuuugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauuuau caaugugcca gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cagaucauuc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccguauc agggaacgcc cucuuuuuuc 480

aggaauguag uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaacacca gccaggaaga ucuguuggua cugugggggga uucaccauuc uaaugaugcg 600

acagaacaga ugaagcucua ucaaaaccca accaccuaug uuuccguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ucgaaugaug caaucaacuu cgaaagcaau 780

gggaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aaguggaaua ugguaacugc agcaccaagu gucaaacucc gauaggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

aggagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauaguaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccaccca aaaggcaaua gauggaguua ccaauaaggu caacucuauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag aggacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cugagggaua augcaaagga gcuggguaac 1440

gguugcuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauuagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcgc uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 44969
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJS18468

<400> 44969

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auugguuacc augcaaacaa cucgacagag cagguugaca cgauaaugga aaaaaacguc 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaggcu cugcgaucug 180

aauggaguga aaccucugau uuuaaaggau uguaguguag cuggauggcu ucuuggaaac 240

ccaaugugcg acgaguucau cagagugccg gaauggucuu acauagugga gagggcuaac 300

ccagccaaug accucuguua cccagggaau cucaaugacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu cugaucaucc ccaagaguuc uuggcccaau 420

caugaaacau cauuaggggu gagugcagca uguccauacc agggagugcc cuccuuuuuc 480

agaaaugugg uauggcuuac caagaagaac gaugcauacc caacaauaaa gaugagcuac 540

aauaauacca auagggaaga ucuuuugaua cugugggggа uucaucauuc caacaaugca 600

gcagagcaga caaaucucua uaaaaaccca accaccuaug uuuccguugg gacaucaaca 660

uuaaaccaga gauuggugcc aaaaauagcu acuagauccc aaguaaacgg gcaacgugga 720

agaauggauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuua uugcuccaga auaugcauac aaaauaguca agaaagggga cucaacaauu 840

augaaaagug aaauggaaua uggccacugc aacaccaaau gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga gugccccaaa 960

uacgugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

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ggaaugguag augguuggua uggguaccac cauagcaaug aacaggggag uggguacgcu 1140

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auugacaaaa ugaacacuca auuugaggcc guuggaaggg aguuuaauaa cuuagaacgg 1260

agaauagaga auuuaaauaa gaaaauggaa gacggauucc uagaugucug gacuuacaau 1320

gcugaacuuu uaguucucau ggaaaaugag agaacucuag auuuccauga uucaaauguc 1380

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gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaauggg 1500

acguaugacu acccccagua uucagaagaa gcaagauuaa aaagggaaga aauaagcgga 1560

gugaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucccuaacac uggcaaucau uguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 44970
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJS18479

<400> 44970
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auugguuacc augcaaacaa cucgacagag cagguugaca cgauaaugga aaaaaacguc 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaggcu cugcgaucug 180

aauggaguga aaccucugau uuuaaaggau uguaguguag cuggauggcu ucuuggaaac 240

ccaaugugcg acgaguucau cagagugccg gaauggucuu acauagugga gagggcuaac 300

ccagccaaug accucuguua cccagggaac cucaaugacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu cugaucaucc ccaagaguuc uuggcccaau 420

caugaaacau cauuaggggu gagcgcagca uguccauacc agggaaugcc cuccuuuuuc 480

agaaaugugg uauggcuuac caagaagaac gauacauacc caacaauaaa gaugagcuac 540

aauaauacca auagggaaga ucuuuugaua cuaugggggа uucaucauuc caacaaugca 600

gcagagcaga caaaucucua uaaaaaucca accaccuaug uuuccguugg gacagcaaca 660

uuaaaccaga gauuggugcc aaaaauagcu acuagauccc aaguaaacgg gcaacgugga 720

agaauggauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuua uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aaauggaaua uggccacugc aacaccaaau gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca cuaucgggga gugccccaaa 960

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gcagacagag aauccaccca aaaggcaaua gauggaguua ccaauaaggu caacucgaua 1200

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agaauagaga acuuaaauaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

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aagaaccuuu augacaaagu ccgacuacag cuuagggaua augcaaagga gcuggguaau 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaauggg 1500

acguaugacu acccccagua uucagaagaa gcaagauuaa aaagggaaga aauaagcgga 1560

gugaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucccuagcac uggcaaucau uguggcuggu cuaucuuuau ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 44971
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJY79339

<400> 44971
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucucau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg augaauuccu caaugugccg gaauggucuu acauagugga gaaaaucaau 300

ccagccaaug accucuguua uccagggaau uuaaacgacu augaagaacu gaaacaucua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaagauuc uuggucagau 420

caugaagccu caggagugag cucagcaugc ccauaccaag gaagauccuc cuuuuuuaga 480

aauguuguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagaa aaguuacaau 540

aauacuaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcugca 600

gagcagacaa ggcuuuauca aaacccaacu accuauaucu ccguugggac aucaacacua 660

aaccagagau ugguacccaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggagauuc aacaauuaug 840

aaaagugagu uggaauauag caacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagga auagcccuca aggggagaaa 1020

agaagaaaaa agagaggacu auucggagcc auagcaggcu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aagggcuaua gauggaguca ccaauaaggu caauucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaucuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccucaaua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caauggaucg 1680

cuacaaugca gaauuugcau uuaa 1704

<210> 44972
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJY79341

<400> 44972
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucucau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg augaauuccu caaugugccg gaauggucuu acauagugga gaaaaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaagauuc cuggucagau 420

caugaaaccu caggagugag cucagcaugc ccauaccaag gaagauccuc cuuuuuuaga 480

aauguugugu ggcuuaccaa aaagaacgau gcauacccaa caauaaagaa aaguuacaau 540

aauacuaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcugca 600

gagcagacaa ggcuuuauca aaacccaacu accuacaucu ccguugggac aucaacacua 660

aaccagagau ugguacccaa aauagcuacc agaucuaagg uaaacgggca aaauggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggagauuc aacaauuaug 840

agaagugagu uggaauauag uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauucac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagga auagcccuca aggagagaaa 1020

agaagaaaaa agagaggacu auucggagcc auagcaggcu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccau cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aagggcuaua gauggaguca ccaauaaggu caauucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaucuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccucaaua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caauggaucg 1680

cuacaaugca gaauuugcau uuaa 1704

<210> 44973
<211> 1704
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJY79342

<400> 44973
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucucau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg augaauuccu caaugugccg gaauggucuu acauagugga gaaaaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaagauuc uuggucagau 420

caugaagccu caggagugag cucagcaugc ccauaccaag gaagauccuc cuuuuuuaga 480

aauguuguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagaa aaguuacaau 540

aauacuaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcugca 600

gagcagacaa ggcuuuauca aaacccaacu accuauaucu ccguugggac aucaacacua 660

aaccagagau ugguacccaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggagauuc aacaauuaug 840

aaaagugagu uagaauauag uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

guaaaaucaa acagauuagu ccuugcuacu gggcucagga auagcccuca aggagagaaa 1020

agaagaaaaa agagaggacu auucggagcc auagcaggcu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aagggcuaua gauggaguca ccaauaaggu caauucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaucuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccucaaua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caauggaucg 1680

cuacaaugca gaauuugcau uuaa 1704

<210> 44974
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJY79343

<400> 44974
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaauguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucucau uuugagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg augaauuccu caaugugccg gaaugguguu acauagugga gaaaaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaagauuc uuggucagau 420

caugaagccu cgggagugag cucagcaugc ccauaccaag gaagauccuc cuuuuuuaga 480

aauguuguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagaa aaguuacaau 540

aauacuaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcugca 600

gagcagacaa ggcuuuauca aaacccaacu accuauaucu ccguugggac aucaacacua 660

aaccagagau ugguacccaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggagauuc aacaauuaug 840

aaaagugagu uggaauauag uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagga auagcccuca aggagagaaa 1020

agaagaaaaa agagaggacu auucggagcc auagcaggcu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aagggcuaua gauggaguca ccaauaaggu caauucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggagaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaucuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau gaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccucaaua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caauggaucg 1680

cuacaaugca gaauuugcau uuaa 1704

<210> 44975
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AJY79345

<400> 44975
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac gcgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucucau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg augaauuccu caaugugccg gaauggucuu acauagugga gaaaaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaagauuc uuggucagau 420

caugaagccu caggagugag cucagcaugc ccauaccaag gaagauccuc cuuuuuuaga 480

aauguuguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagaa aaguuacaau 540

aauacuaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcugca 600

gagcagacaa ggcuuuauca aaacccaacu accuauaucu ccguugggac aucaacacua 660

aaccagagau ugguacccaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gaguaaugga 780

aauuucauug cuccagaaaa ugcauacaaa auugucaaga aaggagauuc aacaauuaug 840

aaaagugagu uggaauauag uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagga auagcccuca aggagagaaa 1020

agaagaaaaa agagaggacu auucggagcc auagcaggcu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aagggcuaua gauggaguca ccaauaaggu caauucgauc 1200

auugacaaaa ugaacacuca guuugaggcu guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuucauga cucaaauguc 1380

aagaaucuuu augacaaggu ccgacuacag cuuagggaua augcaaagga gcuugguaac 1440

gguuguuucg aguucuauca cagaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu auccucaaua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagc 1620

ucccuagcac uggcaaucau gguggcuggu cuaucuuuau ggaugugcuc caauggaucg 1680

cuacaaugca gaauuugcau uuaa 1704

<210> 44976
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AKA54643

<400> 44976
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu gguaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44977
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AKA54650

<400> 44977
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AKA54651

<400> 44978
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ggaagugaca acagcauggc aacgcugugc cuggggcauc acgcaguacc aaacggaacg 120

uuagugaaaa caauaacaga ugaccaaauu gaagugacua augcuacuga gcugguccag 180

aguaccucaa aaggugaaau augcaguagu ccucaccaaa uccuugaugg aaaaaauugu 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag cacagcuuac agcaacuguu acccuuauua ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcaccc uggaauuuac ucaagaaagc 420

uucaauugga cuggggguugc ucaagacgga gcaagcuauu cuugcagaag ggaaucugaa 480

aacaguuucu uuaguagauu gaauugguua uauaguuuga auuacaaaua uccagcgcug 540

aacguaacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguacaccac 600

ccgggguacgg acaaggacca aaccagucua uauauucaag caucagggag aguuacaguc 660

uccaccaaau ggagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggauaagg 720

ggugucucca gcauaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu cgggguuacu ucaaaauaca aaguggaaa 840

agcucaauaa ugaggucaga ugcacacauu ggcaacugca acucugaaug cauuacccca 900

aauggaagca uucccaacga caaaccuuuu caaaauguaa acagaauaac auaugggcc 960

ugucccagau auguuaagca aaacacucug aaauuagcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguuggaa 1080

gggauggugg acgguuggua ugguuucagg caucaaaacu cugaaggcac agggcaagca 1140

gcagaucuua aaagcacuca agcggcaauc aaccaaauca ccgggaaacu aaauagagua 1200

aucaagaaga cgaaugaaaa auuccaucag aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuagagag auacguugaa gacacuaaaa uagaccucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaacuga cucagaaaug 1380

aacaaacugu ucgaaaggac aaggaagcaa cugcgggaaa augcugagga caugggcaau 1440

ggaugcuuua aaauauauca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcaguaaaca aucgguucca gaucaaaggu 1560

guucagcuga aguuaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu gugcuguucu gcuaggauuc auuauguggg caugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44979
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AKA59351

<400> 44979
augaaggcaa uacuaguaau ucugcuauau acauuugcag ccgcaaaugc agacacaaua 60

uguauagguu aucaugcgaa caauucaaca gacacugugg acacaguacu agaaaagaau 120

guaacaguaa cacacucugu ugaccuucua gaagacaagc auaaugggag acuaugcaaa 180

cuaagagggg uagcuccauu acauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

ccuaaucaug aaucgaacaa aggugugacg gcagcauguc cucaagcugg agcaaaaagu 480

uucuacaaaa auuuaauaug gcuaguuaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaaggaagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguaucauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu accauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucagucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaagguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaagaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa gaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44980
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__AKA59353

<400> 44980

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu gaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cucaacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucaaaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaauac aaguucaugg 420

cccaaucaug acucgagcaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccuucu 600

acuagugcug accaacaaaa acucuaucag aaugaagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaauu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa auauaguggu accgagauau gcauucgcaa uggaaagaaa cgcugggucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuccag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaguugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg auggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auuugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauagaaa gauugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguuga uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugagg 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggug 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacuga uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

caguguagaa uauguauuua a 1701

<210> 44981
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AKA59355

<400> 44981
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagggu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaaaaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacgucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu caguaucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa aggaguaacg gcagcauguc cucaugcugg agcaagaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccagaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua caacuuguca gacacccaag 900

ggugcuauaa acacaagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaaguac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauc gccgguuuca uugaaggagg guggacagga 1080

augguggaug gaugguacgg uuaucaccau caaaaugagc aagggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uuugguuauu 1200

gaaaagauga auacacaguu cacagcaguc gguaaagagu ucagccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaauguaaag 1380

aacuuauaug aaaagauaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa gugcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaagggu uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44982
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AKE37137

<400> 44982
augaaggcaa gacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uagcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acccgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaca 540

uccuacauua augauaaagg gaaagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauaugcuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac aucaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauguacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucuc gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaucau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccuuugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaguacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 44983
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AKS48035

<400> 44983
auggagaaaa uggugcuucu ucuugcagug guuagccuug uuaaaaguga ucagauuugc 60

auugguuacc augcaaacaa cucgacagag cagguugaca cgauaaugga aaagaacguc 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggagacu cugcgaucug 180

aauggaguga aaccucugau uuuaaaggau uguaguguag cuggauggcu ccuuggaaac 240

ccaaugugug acgaguucau cagagugccg gaaugguсuu acauagugga gagggcuaac 300

ccagccaaug accucuguua uccagggaac cucaaugacu augaggaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu cugaucaucc ccaagaguuc uuggcccaau 420

cauacaucau caggggugag cgcagcaugu ccauaccagg gaaugcccuc cuuuuucaga 480

aauguggguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagau gagcuacaau 540

aauaccuaua gggaagaucu uuugauacug ugggggauuc aucauuccaa caaugcagca 600

gaacagacaa aucucuauaa aaacccaacc accuauguuu ccguugggac aucaacauua 660

aaccagagau uggagccaaa aauagcuacu agaucccaag uaaacgggca acguggaaga 720

auggauuucu ucuggaccau uuuaaaaccg aaugaugcaa uccacuucga gaguaaugga 780

aauuuuauug cuccagaaua ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaaa uggaauaugg gcacugcaac accaaauguc aaacuccaau aggggcgaua 900

aacucuagua ugccauucca caauauacac ccucucacua ucggggagug ccccaaauac 960

gugaaaucga acaaauuagu ccuugcgacu gggcucagaa auaguccucu aagagaaaga 1020

agaagaaaaa gaggacuauu uggagcuaua gcaggguuua uagagggagg auggcaagga 1080

augguagaug guugguaugg guaccaccau agcaaugaac aggggagugg guacgcugca 1140

gacagagaau ccacccaaaa ggcaauagau ggaguuacca auaaggucaa cucgauaaua 1200

gacaaaauga acacucaauu ugaggccguu ggaagagaau uuaauaacuu agaacggaga 1260

auagagaauu uaaauaagaa aauggaagac ggauucuuag augucuggac uuauaaugcu 1320

gaacuuuuag uucucaugga aaaugagaga acucuagauu uccaugauuc aaaugucaag 1380

aaccuuuaug acaagguccg acuacagcuu agggauaaug caaaggagcu ggguaauggu 1440

uguuucgagu ucuaucacaa augugauaau gaauguaugg aaaguguaag aaaugggacg 1500

uaugacuacc cccaguauuc agaagaagca agauuaaaaa gggaagaaau aagcggagug 1560

aaauuggaau caauaggaac uuaccaaaua cugucaauuu auucaacagu ggcgaguucc 1620

cuagcacugg caaucauugu ggcuggucua ucuuuaugga ugugcuccaa ugggucguua 1680

caaugcagaa uuugcauuua a 1701

<210> 44984
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08472

<400> 44984
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acguuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44985
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08475

<400> 44985
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44986
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08478

<400> 44986
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcggcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<400> 44987

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ccaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucagaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 44988
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccaggu auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 44989
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccaggu auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uauggguaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 44990
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag ggggucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucagggag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauccagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44991
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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<400> 44991
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auagugaaaa caauaacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacaaua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggа cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44992
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44992
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaaaaagcaa cugagggaaa augcugaaga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44993
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44993
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaacgga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44994
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 44994
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacaugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgaaaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44995
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08492

<400> 44995
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugcauca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaacgga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44996
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08493

<400> 44996
augaagacca ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca ggucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaacgga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44997
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08494

<400> 44997
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ggaaaugaua auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44998
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALA08495

<400> 44998

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcacug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 44999
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08496

<400> 44999
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45000
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08497

<400> 45000
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaaaaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45001
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08498

<400> 45001
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaauugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45002
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08499

<400> 45002
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45003
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08501

<400> 45003
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcggcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45004
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08502

<400> 45004
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45005
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08503

<400> 45005

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45006
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08504

<400> 45006
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45007
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08505

<400> 45007
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45008
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08506

<400> 45008
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45009
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08507

<400> 45009
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45010
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08508

<400> 45010
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggguucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacca ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45011
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08509

<400> 45011
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucga uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45012
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08510

<400> 45012
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45013
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08511

<400> 45013
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ggaaaugaca auagcacggc aacguugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucuu cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgaguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45014
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08512

<400> 45014
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45015
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08514

<400> 45015
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45016
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALA08515

<400> 45016

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45017
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08516

<400> 45017
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45018
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08517

<400> 45018
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45019
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08519

<400> 45019
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45020
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALA08520

<400> 45020
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45021
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08522

<400> 45021
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ccaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucagaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45022
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08523

<400> 45022
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca uagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45023
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08524

<400> 45023

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacu cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45024
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08525

<400> 45024
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45025
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08526

<400> 45025
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45026
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08527

<400> 45026
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45027
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08528

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuaccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaga gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45028
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALA08529

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45029
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08530

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45030
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauauaccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuauaacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45031
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08532

<400> 45031
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45032
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08533

<400> 45032
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu gguaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggauuac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45033
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08534

<400> 45033
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccucuuug ucgaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45034
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

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hemagglutinin__InfluenzaA__ALA08535

<400> 45034
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacgggacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauauuccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45035
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALA08536

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45036
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALA08537

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaga caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45037
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45037
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45038
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08539

<400> 45038
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45039
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08540

<400> 45039
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45040
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08541

<400> 45040
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaga caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45041
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08542

<400> 45041

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua uagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45042
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08543

<400> 45042
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugcaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45043
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08545

<400> 45043
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45044
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08546

<400> 45044
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45045
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08548

<400> 45045
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucgc ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45046
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08549

<400> 45046
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa cagguguaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cggggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45047
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08550

<400> 45047
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45048
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08551

<400> 45048
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuucuu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45049
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08552

<400> 45049
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45050
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALA08553

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45051
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALA08554

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga ugucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45052
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALA08555

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaguaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45053
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08556

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggaaucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45054
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08557

<400> 45054
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45055
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08558

<400> 45055
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45056
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08559

<400> 45056
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagcg cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa cgggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45057
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08560

<400> 45057
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggа cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45058
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08561

<400> 45058
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ggaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45059
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08563

<400> 45059

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45060
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08571

<400> 45060
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45061
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08572

<400> 45061
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca ggucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaacgga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45062
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08573

<400> 45062
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaacgga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45063
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08574

<400> 45063
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca gugggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45064
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08575

<400> 45064
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca gagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45065
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08576

<400> 45065
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45066
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08577

<400> 45066
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45067
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08579

<400> 45067
augaagacua ucauugcuuu gagcuacauu cuaugucuga uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45068
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08580

<400> 45068
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45069
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08582

<400> 45069
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45070
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALA08583

<400> 45070

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauu ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45071
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08584

<400> 45071
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa uugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45072
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08585

<400> 45072
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45073
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08586

<400> 45073
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug ucgaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45074
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45074
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa uggcugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45075
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45075
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggа cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45076
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08589

<400> 45076
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45077
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08590

<400> 45077

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45078
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08591

<400> 45078
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 45079
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08592

<400> 45079
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45080
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08594

<400> 45080
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacggg acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45081
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08595

<400> 45081
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45082
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08596

<400> 45082
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45083
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08597

<400> 45083
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaagucacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa uggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45084
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08598

<400> 45084
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45085
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08599

<400> 45085
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45086
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08600

<400> 45086
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucucccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45087
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08601

<400> 45087
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu aaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45088
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALA08602

<400> 45088

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucucccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga caugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45089
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALA08603

<400> 45089
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacauaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45090
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08605

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45091
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08606

<400> 45091
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45092
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08607

<400> 45092
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45093
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08609

<400> 45093
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugauaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45094
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08610

<400> 45094
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugacagaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45095
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08611

<400> 45095

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucgga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45096
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08612

<400> 45096
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45097
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08614

<400> 45097
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45098
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45098
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucga uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45099
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08616

<400> 45099
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45100
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08617

<400> 45100
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaacgga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45101
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08619

<400> 45101
augaagacug ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga gaaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

auuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45102
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08620

<400> 45102
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45103
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08621

<400> 45103
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45104
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08622

<400> 45104
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45105
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08623

<400> 45105
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaacugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuaggggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45106
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08624

<400> 45106
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45107
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08625

<400> 45107
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccucuuug ucgaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45108
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08626

<400> 45108
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45109
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08627

<400> 45109
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agagguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45110
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08629

<400> 45110
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca agauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45111
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08630

<400> 45111
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa caaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45112
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08631

<400> 45112
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ggaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45113
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08632

<400> 45113

augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaaugucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45114
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08634

<400> 45114
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45115
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08635

<400> 45115
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45116
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08636

<400> 45116
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gauucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45117
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08637

<400> 45117
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45118
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08638

<400> 45118
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggа cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45119
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08639

<400> 45119
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45120
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08640

<400> 45120
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45121
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08641

<400> 45121
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45122
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08642

<400> 45122
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45123
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08643

<400> 45123
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45124
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALA08644

<400> 45124

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45125
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08645

<400> 45125
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu gaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagauaucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcucu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauc 1680

aggugcaaca uuugcauuug a 1701

<210> 45126
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08646

<400> 45126
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45127
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08647

<400> 45127
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45128
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08648

<400> 45128
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaacgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccucuuug ucgaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<211> 1701
<212> RNA
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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc caaaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuau agcaacuguu acccuuauga ugugccggau 360

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uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<212> RNA

<213> Artificial Sequence

<220>
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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucaa 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<211> 1701
<212> RNA
<213> Artificial Sequence

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uggcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga caugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<212> RNA
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<212> RNA
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<210> 45142
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<212> RNA
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugaa gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc caugucaugu 1620

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<210> 45143
<211> 1701
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45144
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45144
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcaauaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45145
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45146
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45148
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALA08672

<400> 45148
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45149
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08673

<400> 45149

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45150
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08674

<400> 45150
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45151
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08675

<400> 45151
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45152
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08676

<400> 45152
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45153
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08677

<400> 45153
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45154
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08678

<400> 45154
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45155
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08679

<400> 45155
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45156
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08680

<400> 45156
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45157
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08681

<400> 45157
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45158
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08682

<400> 45158
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacauaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45159
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08683

<400> 45159
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45160
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALA08684

<400> 45160

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucauu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca agagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45161
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08686

<400> 45161
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45162
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08687

<400> 45162
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aauugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuagcagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45163
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALA08688

<400> 45163
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45164
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31612

<400> 45164
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45165
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31613

<400> 45165
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuagcagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

cuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45166
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31614

<400> 45166
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45167
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31615

<400> 45167

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucaggaag gaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugaa gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagaaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45168
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31616

<400> 45168
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaccucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45169
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31617

<400> 45169
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45170
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31618

<400> 45170
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45171
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31619

<400> 45171
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acaucugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45172
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31620

<400> 45172
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45173
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31622

<400> 45173
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga uguacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45174
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31623

<400> 45174
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaagcugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45175
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31625

<400> 45175
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuagcagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45176
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31626

<400> 45176
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaaaaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuga acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45177
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31627

<400> 45177
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaccaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45178
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31628

<400> 45178

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45179
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31629

<400> 45179
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45180
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31632

<400> 45180
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45181
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31634

<400> 45181
augaagacua ucauugcuuu gagcuacauu cuaugucugg uucucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45182
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31635

<400> 45182
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45183
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31636

<400> 45183
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45184
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31638

<400> 45184
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaaugg caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45185
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31639

<400> 45185

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45186
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31640

<400> 45186
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45187
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45187
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45188
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31642

<400> 45188
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45189
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31643

<400> 45189
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucagggag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45190
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31644

<400> 45190
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45191
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31645

<400> 45191
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45192
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31646

<400> 45192
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45193
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31647

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45194
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31648

<400> 45194
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugcuuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaacc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45195
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31649

<400> 45195
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45196
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31650

<400> 45196

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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45197
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31652

<400> 45197
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucucccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45198
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31653

<400> 45198
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg cuugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45199
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31654

<400> 45199
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ggaaaugaca auagcacggc aacgcugugu cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45200
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45201
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31656

<400> 45201
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gacauuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45202
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31657

<400> 45202
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45203
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31658

<400> 45203

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaca 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45204
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31659

<400> 45204
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccau 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45205
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31660

<400> 45205
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag agggcaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45206
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31661

<400> 45206
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucagaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa aaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45207
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31662

<400> 45207
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucgcaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

cuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45208
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31663

<400> 45208
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagu 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagcg 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cacacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaga augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45209
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31666

<400> 45209
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45210
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31667

<400> 45210
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacu aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45211
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31668

<400> 45211
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa cgaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauc ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaacu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45212
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31669

<400> 45212
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuauu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45213
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31670

<400> 45213
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag ggguucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaga ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa augagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45214
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31671

<400> 45214

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuauu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45215
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45215
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuaggcc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagagaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuacgacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45216
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45216
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45217
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31674

<400> 45217
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacca augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucacu caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45218
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31675

<400> 45218
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacgc uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45219
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31676

<400> 45219
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc caaaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45220
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31677

<400> 45220
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu aggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45221
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31678

<400> 45221

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg auggcuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45222
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31679

<400> 45222
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga uucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45223
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31680

<400> 45223
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45224
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31681

<400> 45224
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45225
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31682

<400> 45225
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45226
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31683

<400> 45226
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45227
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31684

<400> 45227
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45228
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31685

<400> 45228
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg ggucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45229
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31686

<400> 45229
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg acgguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugcuugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45230
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31687

<400> 45230
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagaaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45231
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aauuuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45232
<211> 1701
<212> RNA
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<220>

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45233
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aacuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggaguaac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45234
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacu 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucagggag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45235
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45236
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31693

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45237
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaua auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

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<210> 45238
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31695

<400> 45238
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45239
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45239

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45240
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45241
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucgau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45242
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45242
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccgaau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacgcaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45243
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31700

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45244
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31701

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45245
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31702

<400> 45245
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauucaucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aacggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45247
<211> 1701
<212> RNA
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45249
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaga uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

cuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45250
<211> 1701
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31707

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45251
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31708

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45252
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 45253
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31710

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacu cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaga cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45254
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31711

<400> 45254
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaga cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45255
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31712

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45256
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31713

<400> 45256
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gauucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauauacca 1020

gagaaacaaa cuaaaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cacaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45257
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31714

<400> 45257

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45258
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31715

<400> 45258
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacug acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45259
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31716

<400> 45259
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45260
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31717

<400> 45260
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ggaaaugaca auagcacagc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa caagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaccac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45261
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31718

<400> 45261
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45262
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauauacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45263
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45264
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45265
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aacuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45266
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caccacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45267
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31724

<400> 45267
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45268
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31725

<400> 45268

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45269
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31726

<400> 45269
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45270
<211> 1701
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua uaccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcgcccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<211> 1701
<212> RNA
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga ucauugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uacgcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45275
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45275

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu ucgaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45276
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45277
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauuuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45278
<211> 1701
<212> RNA
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45279
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45280
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45281
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45282
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31739

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggauca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45283
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31741

<400> 45283
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaagugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45284
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31742

<400> 45284
augaagacua ucauugcuuu gagcuacauu cuaugucugg guuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gacaucccua gcagaauaag caucuacugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagggucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45285
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31743

<400> 45285
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<210> 45286
<211> 1701
<212> RNA
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<220>

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45287
<211> 1701
<212> RNA
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa cgaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uacgcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacu cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaagaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaccuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45288
<211> 1701
<212> RNA
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uacgcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaguucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45289
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45290
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaccucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45291
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31750

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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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hemagglutinin__InfluenzaA__ALE31751

<400> 45292
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuag acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<210> 45293
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31752

<400> 45293

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45294
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31753

<400> 45294
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45295
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31754

<400> 45295
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaccucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45296
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31755

<400> 45296
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45297
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45297
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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45298
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31757

<400> 45298
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45299
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31758

<400> 45299
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aguugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45300
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31759

<400> 45300
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcacuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaacugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucaau caucaggaag agucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aaucgcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauaa caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45301
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31760

<400> 45301
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacgcuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45302
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31761

<400> 45302
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45303
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31762

<400> 45303
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45304
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31763

<400> 45304

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45305
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31764

<400> 45305
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uccccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45306
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31765

<400> 45306
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45307
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31774

<400> 45307
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca agucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45308
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31775

<400> 45308
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaguuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45309
<211> 1701
<212> RNA
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<220>
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<400> 45309
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcauccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45310
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45310
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaguc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45311
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31778

<400> 45311

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45312
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31779

<400> 45312
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaccucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45313
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45313
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augccacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaacaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcgggcu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45314
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31781

<400> 45314
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcggcagu ccucaucaga uccucgaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguaaauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45315
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31782

<400> 45315
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugucuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca gagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugaa gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45316
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31783

<400> 45316
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acgcuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacug ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45317
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31784

<400> 45317
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucuuug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45318
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31785

<400> 45318
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuagcagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45319
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31786

<400> 45319
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagacu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45320
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31787

<400> 45320
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguccag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45321
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31788

<400> 45321
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caagccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45322
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31789

<400> 45322

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ggaaaugaua auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45323
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31790

<400> 45323
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac aguaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug ccugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45324
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31791

<400> 45324
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag cacagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucagggag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45325
<211> 1701
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacauaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45326
<211> 1701
<212> RNA
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucucccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45327
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45329
<211> 1701
<212> RNA
<213> Artificial Sequence

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<400> 45329

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45330
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45330
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac acaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45331
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31798

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45332
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45332
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45333
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31800

<400> 45333
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45334
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31801

<400> 45334
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45335
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31802

<400> 45335
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45336
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31803

<400> 45336
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45337
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31805

<400> 45337
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua ugguuucagg caucagaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45338
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31806

<400> 45338
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cacacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45339
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31807

<400> 45339
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acguuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45340
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31808

<400> 45340

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaaccga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aaggaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<212> RNA
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu ucaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagcg 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<212> RNA
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagcg 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<212> RNA
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

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<212> RNA
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ggaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31821

<400> 45348
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaauugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa cgaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuacugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug cauuacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca aucgguucca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45349
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31822

<400> 45349
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacauaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45350
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31823

<400> 45350
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45351
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31824

<400> 45351
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45352
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31825

<400> 45352
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacagaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45353
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31826

<400> 45353
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45354
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31827

<400> 45354
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45355
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31828

<400> 45355
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45356
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31829

<400> 45356
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggauccaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45357
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31830

<400> 45357
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaggccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auauaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45358
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31832

<400> 45358

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45359
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31833

<400> 45359
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuccgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45360
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31834

<400> 45360
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagagaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45361
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31835

<400> 45361
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa cgaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45362
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31836

<400> 45362
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagu 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccaccuaa acuacacaua cccagcauug 540

aacgugacca ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45363
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31837

<400> 45363
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuacgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa uugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45364
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31838

<400> 45364
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg gagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45365
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31839

<400> 45365

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgcc auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45366
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31840

<400> 45366
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacu cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggggа cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45367
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31842

<400> 45367
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45368
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31843

<400> 45368
augcagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45369
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31844

<400> 45369
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugcauccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acucacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45370
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31846

<400> 45370
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uacgcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45371
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31847

<400> 45371
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45372
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31848

<400> 45372
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45373
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31850

<400> 45373
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga uauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagggucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguggcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45374
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31851

<400> 45374
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca uagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45375
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31852

<400> 45375
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45376
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31853

<400> 45376

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45377
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31854

<400> 45377
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcagaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45378
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31855

<400> 45378
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacucuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45379
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31856

<400> 45379
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucggaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45380
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31857

<400> 45380
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45381
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31858

<400> 45381
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45382
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31859

<400> 45382
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugacagaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcacaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga caugcuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45383
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31860

<400> 45383

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45384
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31861

<400> 45384
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45385
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31862

<400> 45385
augaagauga ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaguuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45386
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31863

<400> 45386
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45387
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31865

<400> 45387
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45388
<211> 1701
<212> RNA
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45389
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa uggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45390
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45391
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31869

<400> 45391
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa uggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45392
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31870

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa uggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45393
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31871

<400> 45393
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45394
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31872

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45395
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31873

<400> 45395
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca ucggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45396
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcgcggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45397
<211> 1701
<212> RNA
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ggaaaugaca auagcgcggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45398
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcgcggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45399
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaua 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45400
<211> 1701
<212> RNA
<213> Artificial Sequence

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaag 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45401
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31879

<400> 45401

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuuacuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45402
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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aggugcaaca uuugcauuug a 1701

<210> 45403
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31881

<400> 45403
augaagacua ucauugccuu gagccacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucauu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aguugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacccug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca agaguacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45404
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31882

<400> 45404
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45405
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31888

<400> 45405
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguagcuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45406
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31889

<400> 45406
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45407
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31890

<400> 45407
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccc agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45408
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31891

<400> 45408
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccc agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45409
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31892

<400> 45409
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45410
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31893

<400> 45410
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45411
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31894

<400> 45411
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45412
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31895

<400> 45412

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gggaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacggg acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgcc auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucggaaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45413
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31896

<400> 45413
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

auugggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45414
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31897

<400> 45414
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45415
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31898

<400> 45415
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45416
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31899

<400> 45416
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguaacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccuggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauga ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcaccca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45417
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31901

<400> 45417
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45418
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31902

<400> 45418
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45419
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31903

<400> 45419

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45420
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31904

<400> 45420
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45421
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31905

<400> 45421
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45422
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31906

<400> 45422
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc acgcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aaggaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45423
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31907

<400> 45423
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaucgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45424
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31908

<400> 45424
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45425
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31909

<400> 45425
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaucgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45426
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31910

<400> 45426
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45427
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31912

<400> 45427
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccccaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gauuaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45428
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31913

<400> 45428
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagaaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45429
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31914

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45430
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31915

<400> 45430

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggaa 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcugugauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45431
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31916

<400> 45431
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uaguacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45432
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31917

<400> 45432
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uaguacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45433
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31918

<400> 45433
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucgcu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uacgcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45434
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31920

<400> 45434
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45435
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45435
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggcucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaua accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45436
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31922

<400> 45436
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45437
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31923

<400> 45437

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45438
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31924

<400> 45438
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45439
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31925

<400> 45439
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45440
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31926

<400> 45440
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaggc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag cauauauugg acaauaguga aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg aucuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45441
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31927

<400> 45441
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccucuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45442
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31928

<400> 45442
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccgaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac guacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugaa gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45443
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31930

<400> 45443
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacauaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45444
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31931

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45445
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31932

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaccuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45446
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE31933

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa uugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45447
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31934

<400> 45447
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua ccaagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauauacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaccuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45448
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31935

<400> 45448

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cuaagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45449
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31936

<400> 45449
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45450
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31937

<400> 45450
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45451
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccau 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uaguacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45452
<211> 1701
<212> RNA
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uucuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggggacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcacu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45455
<211> 1701
<212> RNA
<213> Artificial Sequence

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<400> 45455

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auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcacu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45456
<211> 1701
<212> RNA
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<220>
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<400> 45456
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu caaugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaaugucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg acauugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45457
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31946

<400> 45457
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45458
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31947

<400> 45458
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45459
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31948

<400> 45459
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

gucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaguuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45460
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31949

<400> 45460
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45461
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31950

<400> 45461
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca caguacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgcg auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45462
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31951

<400> 45462
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagua cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45463
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31952

<400> 45463
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca acgggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45464
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31953

<400> 45464
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccagguacgg acaaggacca aaucuuccug uuugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaccag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45465
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31954

<400> 45465
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucacu caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaaugucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

gucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45466
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31955

<400> 45466

augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auaguacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45467
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31956

<400> 45467
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gacaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45468
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31957

<400> 45468
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuagaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45469
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31958

<400> 45469
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuaaacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45470
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31959

<400> 45470
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacgcaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45471
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31960

<400> 45471
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcuaguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcucu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45472
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31961

<400> 45472
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucagaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaaaca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45473
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31962

<400> 45473

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaaugag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45474
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31963

<400> 45474
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ggaaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuauaacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 45475
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31964

<400> 45475
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ggaaaugaca auagcacggc aacgcugugc cuugggcauc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa cgaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauua ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45476
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31965

<400> 45476
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag uaaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45477
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31966

<400> 45477
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uccccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45478
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31967

<400> 45478
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccucuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45479
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31968

<400> 45479
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45480
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31969

<400> 45480
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccggauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaacuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45481
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31970

<400> 45481
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45482
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31971

<400> 45482
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacgcaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45483
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31972

<400> 45483
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45484
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE31973

<400> 45484

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auugugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45485
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31974

<400> 45485
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cauugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg aguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau cgucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca caggaaaccu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucagaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaaaca aagcacucug aaauuggcaa caggaaugcg aaacguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaaacaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg aucuuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45486
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31975

<400> 45486
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45487
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31976

<400> 45487
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 45488
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31977

<400> 45488
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45489
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31978

<400> 45489
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auucacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45490
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45490
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuagcagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45491
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31980

<400> 45491

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagagua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45492
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31981

<400> 45492
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45493
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucauu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagaaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauuuucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaacgga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45494
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31996

<400> 45494
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccc cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagggucac auacggggcc 960

ugucccagau auguuaaaca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45495
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31997

<400> 45495
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuua uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucgggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45496
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31998

<400> 45496
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuagaucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauauug gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcuccauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45497
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE31999

<400> 45497
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuagcagauu aaauugguug acccacuuac acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauu gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgauucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45498
<211> 1701
<212> RNA
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<220>
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugacagaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcugcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45499
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45500
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcgcccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45501
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE32003

<400> 45501
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag uaucuauugg acaauaguaa aaccgggaga cauacuuuug 780

aucaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caagccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45502
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32004

<400> 45502
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45503
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32005

<400> 45503
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45504
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32006

<400> 45504
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45505
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32007

<400> 45505
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaacuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45506
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32008

<400> 45506
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaag uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45507
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45507
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug uucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaga gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45508
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32010

<400> 45508
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuac acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuu caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucugaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45509
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32011

<400> 45509

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucagaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45510
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32012

<400> 45510
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45511
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32013

<400> 45511
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45512
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32014

<400> 45512
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uacgccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccaauuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45513
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32015

<400> 45513
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga uguaccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cacacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45514
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32016

<400> 45514
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45515
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32017

<400> 45515
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauu ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45516
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32018

<400> 45516
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45517
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32020

<400> 45517
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaauggaacg 120

auagugaaaa caaucacaaa ugaccggauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45518
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32021

<400> 45518
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuaggcc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45519
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32022

<400> 45519
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc gaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaaugg caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45520
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32023

<400> 45520
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuaggcc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45521
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32024

<400> 45521
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga aaaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucacu caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc caggauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggacc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acuauguaua cagggaugaa gcuuuaaaca accguuucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45522
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32025

<400> 45522
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaucgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

agcaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45523
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32026

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45524
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32027

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45525
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32028

<400> 45525
augaagacua ucauugcuuu gagccacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45526
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32029

<400> 45526
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc acgcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacguaacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aaggaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45527
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32030

<400> 45527

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacauaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45528
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32031

<400> 45528
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacugua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uaguacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45529
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE32032

<400> 45529
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucgcugua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45530
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45531
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32034

<400> 45531
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45532
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE32035

<400> 45532
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagcg 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45533
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE32036

<400> 45533
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuac acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45534
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32037

<400> 45534
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45535
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32038

<400> 45535
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuaggcc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca aagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucuaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45536
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32039

<400> 45536
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45537
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32040

<400> 45537
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccugguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaca 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauugaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45538
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE32041

<400> 45538

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugagagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45539
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32042

<400> 45539
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45540
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32043

<400> 45540
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu agagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45541
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32044

<400> 45541
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

gggaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45542
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32045

<400> 45542
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa cgaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaacu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45543
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32046

<400> 45543
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gggaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugau aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45544
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32047

<400> 45544
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucagg uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugauaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaguga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45545
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE32048

<400> 45545

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa cgaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaacu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45546
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32049

<400> 45546
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ggaaaugaca auagcacggc aacacugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgaaaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45547
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32050

<400> 45547
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaagacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aauaacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugagug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45548
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32051

<400> 45548
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acagggucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaauua accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45549
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32052

<400> 45549
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg ggaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacguuacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 45550
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32053

<400> 45550
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacu 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaag 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45551
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32054

<400> 45551
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgaaagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaacc auugcauuug a 1701

<210> 45552
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32055

<400> 45552
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcauu guuggggguc aucauguggg ccugccaaaa uggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45553
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32056

<400> 45553
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcccuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45554
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32057

<400> 45554
augaagacua ucauugcuuu gagcuacguu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45555
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32058

<400> 45555
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45556
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE32059

<400> 45556

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45557
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32060

<400> 45557
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca agucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auucacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa auaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45558
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32061

<400> 45558
augaagacca ucauugcccu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa cgggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45559
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32062

<400> 45559
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacucuug 780

auuuacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggaaaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45560
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32063

<400> 45560
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccggggga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45561
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32064

<400> 45561
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uauaggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45562
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32065

<400> 45562
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccucuuug ucgaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45563
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32066

<400> 45563

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugucua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45564
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32067

<400> 45564
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45565
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32068

<400> 45565
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaaaca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc ucguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45566
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32069

<400> 45566
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45567
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32070

<400> 45567
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacgggguc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaua accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45568
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32071

<400> 45568
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45569
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32072

<400> 45569
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45570
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32073

<400> 45570
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45571
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32074

<400> 45571
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucuu cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45572
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32075

<400> 45572
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45573
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32076

<400> 45573
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucugacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45574
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE32077

<400> 45574

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccau 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45575
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32078

<400> 45575
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaucac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45576
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE32079

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45577
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE32080

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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugcuuccc uuaggucacu gguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucuu cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45578
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32081

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagu 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45579
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32082

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45580
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32083

<400> 45580
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaagaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45581
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32084

<400> 45581

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa cgggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugccuu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga aaucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45582
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32085

<400> 45582
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa cgaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45583
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32086

<400> 45583
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu agcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45584
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32087

<400> 45584
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugacgg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuag acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaauuu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaucu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45585
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32088

<400> 45585
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucuccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaguug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45586
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32089

<400> 45586
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45587
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32090

<400> 45587
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45588
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32091

<400> 45588
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag gaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45589
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32092

<400> 45589
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaaa uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca ggucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugaac acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45590
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32093

<400> 45590
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45591
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32094

<400> 45591
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaccagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45592
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE32095

<400> 45592

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45593
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32096

<400> 45593
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa gcuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45594
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32097

<400> 45594
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45595
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32099

<400> 45595
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45596
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32100

<400> 45596
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggaucuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45597
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32101

<400> 45597
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agccaauguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

gguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45598
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32102

<400> 45598
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaagca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45599
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32103

<400> 45599

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45600
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALE32104

<400> 45600
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45601
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32105

<400> 45601
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45602
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32106

<400> 45602
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45603
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32107

<400> 45603
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ccaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca aaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45604
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32108

<400> 45604
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcgcggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaauagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcag cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45605
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32109

<400> 45605
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaagcuuccu 60

gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45606
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32110

<400> 45606
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaaugagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45607
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32111

<400> 45607
augaagacua ucauugccuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uaguacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45608
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32112

<400> 45608
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gggaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacgcgua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45609
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32113

<400> 45609
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaaaaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaaugcg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca auggaaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45610
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALE32114

<400> 45610

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45611
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32115

<400> 45611
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ggaaaugaca auagcacggc aacgcugugc cuuggacacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaag gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45612
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32116

<400> 45612
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ggaaaugaca auagcacggc aacgcugugc cuugggcauc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacguu 1680

aggugcaaca uuugcauuug a 1701

<210> 45613
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32117

<400> 45613
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau augucaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagauuuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagagua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45614
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALE32118

<400> 45614
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45615
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALM06086

<400> 45615
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45616
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALM06087

<400> 45616
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucc 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugagaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu cggggcgauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaauua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45617
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALM06088

<400> 45617

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugagaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggcgauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45618
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALM06089

<400> 45618
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uugccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagggag 360

caauugagcu cagugucauc auuugagaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg ggcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu cggggcgauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccacuu ggagaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45619
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39661

<400> 45619
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccccaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccau 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccaua ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guauugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45620
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39662

<400> 45620
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagguu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uacgcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca uaaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45621
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39663

<400> 45621
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacca augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca acgggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45622
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39664

<400> 45622
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu auauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag agucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45623
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39665

<400> 45623
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agagaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45624
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39666

<400> 45624
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag uaaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45625
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39667

<400> 45625
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagc ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caagccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca acgggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acguaugacc acgauguaua caggaaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45626
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39668

<400> 45626
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45627
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39669

<400> 45627
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau uaucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45628
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALN39670

<400> 45628

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaaugga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45629
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39671

<400> 45629
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45630
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39672

<400> 45630
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45631
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccagauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaauuu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45632
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucgcu aguugccuca uccggcacac uggaguucaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaacgga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

auugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45634
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39676

<400> 45634
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaaac 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucagaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aaacacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca aucagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45635
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALN39677

<400> 45635

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacgcaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45636
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39678

<400> 45636
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ggaaaugaca auagcacggc aacgcugugc cuuggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45637
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39679

<400> 45637
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

guagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucgagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45638
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39680

<400> 45638
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45639
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALN39681

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45640
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45641
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45642
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45643
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45644
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uauaccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45645
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39687

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45646
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALN39688

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cugggggucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacauaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45647
<211> 1701
<212> RNA
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auucacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45648
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccauaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagcg 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45649
<211> 1701
<212> RNA
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<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagcccac agcaacuguu accccuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagcg 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucaga caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45651
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45652
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39694

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45653
<211> 1701
<212> RNA
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<220>
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<400> 45653

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

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agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45654
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45655
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39697

<400> 45655
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gaaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgag ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccgguacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcacug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

uccaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45656
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45656
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccaggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca ugggaucaau aagaaaugga 1500

acuuaugacc acaaugugua caggaaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45657
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45657
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua uccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aagugcaaca uuugcauuug a 1701

<210> 45658
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45658
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu uuaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45659
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39702

<400> 45659
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcagca uuugcauuug a 1701

<210> 45660
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39703

<400> 45660
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ggaaaugacg auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45661
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39704

<400> 45661
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa agccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45662
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39705

<400> 45662
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45663
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39706

<400> 45663
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaaug 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acucuaauag augcucuauu gggagacccu cagugugaug acuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uacgcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45664
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALN39707

<400> 45664

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaaggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45665
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39708

<400> 45665
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45666
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39709

<400> 45666
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauucuucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauug augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcaugag gggaucuaau 480

aguaguuuuu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaacc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

accuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45667
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39710

<400> 45667
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uagguaaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagauccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45668
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39711

<400> 45668
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45669
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39712

<400> 45669
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcagagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45670
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39713

<400> 45670
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggcucgau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaua accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45671
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39714

<400> 45671

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa acgcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45672
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaguuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45673
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45674
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccucuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45675
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45675
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacggag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau augucaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagagua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45676
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45676
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45677
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39735

<400> 45677
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaga ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45678
<211> 1701
<212> RNA
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<220>
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<400> 45678
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaauuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg agguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucaga accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45679
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45679
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45680
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cugugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45681
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39739

<400> 45681
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucauaaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuag acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45682
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__ALN39740

<400> 45682

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacug ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucgau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggggaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45683
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39741

<400> 45683
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguua acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauuau acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagagaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45684
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39742

<400> 45684
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggac 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45685
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ALN39743

<400> 45685
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacauaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaaga 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45686
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaaga 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45687
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaaga 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucaugugg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45688
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gaaaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaaga 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugaggggag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacuau uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45689
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45689

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uacgccuccc uuaggucacu aguugccuca ucuggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa aauacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45690
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45690
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcagugcc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag aagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacgcaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucgggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacu aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggaa 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45691
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45691
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa caagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcaccuauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaaacu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

agaugcaaca uuugcauuug a 1701

<210> 45692
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45692
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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aggugcaaca uuugcauuug a 1701

<210> 45693
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45693
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccuagau augucaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucaa auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45694
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggagacu cugcgaucug 180

aauggaguga aaccucugau uuuaaaggau uguaguguag cuggauggcu ccuuggaaac 240

ccaaugugug acgaguucau cagagugccg gaaugguucuu acauagugga gagggcuaac 300

ccagccaaug accucuguua uccagggaac cucaaugacu augaggaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu cugaucaucc ccaagaguuc uuggcccaau 420

cauacaucau caggggugag cgcagcaugu ccauaccagg gaaugcccuc cuuuuucaga 480

aauguggguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagau gagcuacaau 540

aauaccuaua gggaagaucu uuugauacug ugggggauuc aucauuccaa caaugcagca 600

gaacagacaa aucucuauaa aaacccaacc accuauguuu ccguugggac aucaacauua 660

aaccagagau uggagccaaa aauagcuacu agaucccaag uaaacgggca acguggaaga 720

auggauuucu ucuggaccau uuuaaaaccg aaugaugcaa uccacuucga gaguaaugga 780

aauuuuauug cuccagaaua ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaaa uggaauaugg gcacugcaac accaaauguc aaacuccaau aggggcgaua 900

aacucuagua ugccauucca caauauacac ccucucacua ucggggagug ccccaaauac 960

gugaaaucga acaaauuagu ccuugcgacu gggcucagaa auaguccucu aagagaaaga 1020

agaagaaaaa gaggacuauu uggagcuaua gcaggguuua uagagggagg auggcaagga 1080

augguagaug guugguaugg guaccaccau agcaaugaac aggggagugg guacgcugca 1140

gacagagaau ccacccaaaa ggcaauagau ggaguuacca auaaggucaa cucgauaaua 1200

gacaaaauga acacucaauu ugaggccguu ggaagagaau uuaauaacuu agaacggaga 1260

auagagaauu uaaauaagaa aauggaagac ggauucuuag augucuggac uuauaaugcu 1320

gaacuuuuag uucucaugga aaaugagaga acucuagauu uccaugauuc aaaugucaag 1380

aaccuuuaug acaagguccg acuacagcuu agggauaaug caaaggagcu gggguaauggu 1440

uguuucgagu ucuaucacaa augugauaau gaauguaugg aaaguguaag aaaugggacg 1500

uaugacuacc cccaguauuc agaagaagca agauuaaaaa gggaagaaau aagcggagug 1560

aaauuggaau caauaggaac uuaccaaaua cugucaauuu auucaacagu ggcgaguucc 1620

cuagcacugg caaucauugu ggcuggucua ucuuuaugga ugugcuccaa ugggucguua 1680

caaugcagaa uuugcauuua a 1701

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<212> RNA
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acuguuacac augcccaaga cauacuggaa aagacacaca auggaaagcu cugcgauuua 180

aauggaguga agccucugau uuuaaaggau uguaguguag cuggaugguu ccuuggaaac 240

cgaaugugug acgaguucau cagagugccg gaauggucuu acauagugga gagggcuaac 300

ccagccaaug accucuguua uccagggaac cucaaugacu augaggaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu cugaucaucc ccaagaguuc uuggcccaau 420

cauacaucau caggggugag ugcagcaugu ccauaccagg gaaugcccuc cuuuuucaga 480

aauguggguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagau gagcuacaau 540

aauaccuaua gggaagaucu uuugauacug ugggggauuc aucauuccaa caaugcagca 600

gagcagacaa aucucuauaa aaacccaacc accuauguuu ccguugggac aucaacauua 660

aaccagagau uggagccaaa aauagcuacu agaucccaag uaaacgggca acguggaaga 720

auggauuucu ucuggaccau uuuaaaaccg aaugaugcaa uccacuucga gaguaaugga 780

aauuuuauug cuccagaaua ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaaa uggaauaugg gcacugcaac accaaauguc aaacuccaau aggggcgaua 900

aacucuagua ugccauucca caauauacac ccucucacua ucggggagug ccccaaauac 960

gugaaaucga acaaauuagu ccuugcgacu gggcucagaa auaguccucu aagagaaaga 1020

agaagaaaaa gaggacuauu uggagcuaua gcaggguuua uagagggagg auggcaagga 1080

augguagaug guugguaugg guaccaccau agcaaugaac aggggagugg guacgcugca 1140

gacagagaau ccacccaaaa ggcaauagau ggaguuacca auaaggucaa cucgauaaua 1200

gacaaaauga acacucaauu ugaggccguu ggaagagaau uuaauaacuu agaacggaga 1260

auagagaauu uaaauaagaa aauggaagac ggauucuuag augucuggac uuauaaugcu 1320

gaacuuuuag uucucaugga aaaugagaga acucuagauu uccaugacuc aaaugucaag 1380

aaccuuuaug acaagguccg acuacagcuu agggauaaug caaaggagcu ggguaauggu 1440

uguuucgagu ucuaucacaa augugauaau gaauguaugg aaaguguaag aaaugggacg 1500

uaugacuacc cccuguauuc agaagaagca agguuaaaaa gggaagaaau aagcggagug 1560

aaauuggaau caauaggaac uuaccaaaua cugucaaauu auucaacagu ggcgaguucc 1620

cuagcacugg caaucauugu ggcuggucua ucuuuaugga ugugcuccaa ugggucguua 1680

caaugcagaa uuugcauuua a 1701

<210> 45696
<211> 1701
<212> RNA
<213> Artificial Sequence

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acuguuacac augcccaaga cauacuggaa aagacacaca auggaaagcu cugcgauuua 180

aauggaguga agccucugau uuuaaaggau uguaguguag cuggauggcu ccauggaaac 240

cgaaugugug acgaguucau cagagugccg gaauggucuu acauagugga gagggcuaac 300

ccagccaaug accucuguua uccagggaac cucaaugacu augaggaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu cugaucaucc ccaagaguuc uuggcccaau 420

cauacaucau caggggugag ugcagcaugu ccauaccagg gaaugcccuc cuuuuucaga 480

aauguggguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagau gagcuacaau 540

aauaccuaua gggaagaucu uuugauacug ugggggauuc aucauuccaa caaugcagca 600

gagcagacaa aucucuauaa aaacccaacc accuauguuu ccguugggac aucaacauua 660

aaccagagau uggagccaaa aauagcuacu agaucccaag uaaacgggca acguggaaga 720

auggauuucu ucuggaccau uuuaaaaccg aaugaugcaa uccacuucga gaguaaugga 780

aauuuuauug cuccagaaua ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaaa uggaauaugg gcacugcaac accaaauguc aaacuccaau aggggcgaua 900

aacucuagua ugccauucca caauauacac ccucucacua ucggggagug ccccaaauac 960

gugaaaucga acaaauuagu ccuugcgacu gggcucagaa auaguccucu aagagaaaga 1020

agaagaaaaa gaggacuauu uggagcuaua gcaggguuua uagagggagg auggcaagga 1080

augguagaug guugguaugg guaccaccau agcaaugaac aggggagugg guacgcugca 1140

gacagagaau ccacccaaaa ggcaauagau ggaguuacca auaaggucaa cucgauaaua 1200

gacaaaauga acacucaauu ugaggccguu ggaagagaau uuaauaacuu agaacggaga 1260

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gaacuuuuag uucucaugga aaaugagaga acucuagauu uccaugacuc aaaugucaag 1380

aaccuuuaug acaagguccg acuacagcuu agggauaaug caaaggagcu ggguaauggu 1440

uguuucgagu ucuaucacaa augugauaau gaauguaugg aaaguguaag aaaugggacg 1500

uaugacuacc cccuguauuc agaagaagcc agcuuaaaaa gggaagaaau aagcggagug 1560

aaauuggaau caauaggaac uuaccaaaua cugucaauuu auucaacagu ggcgaguucc 1620

cuagcacugg caaucauagu ggcugguuua ucuuuaugga ugugcuccaa ugggucguug 1680

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<210> 45697
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALT20080

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aucugcaucg gcuaucaauc aacaaacucu acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc aaaagaauug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu aucgcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcacagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaacgg cgauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuauaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aagaccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uuuugaaacc aggucaaaca cugcgaauaa aaucugaugg gaaccuaaua 780

gcuccauggu uuggacacau ucuuucagga gagagccacg gaagaauucu gaagacuaau 840

cuaaaaaggg guagcugcac cgugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuagucgc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacucaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcaa 1200

uaugaaauca ucgaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuc 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cgaaacggga ccuacaacag aaggaaauau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 45698
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ALT66860

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45699
<211> 1701
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__AMA65391

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucuuccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45700
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

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guaacaguaa cacacucugu uaaucuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaccugu cgccaguuca 1620

uugguacugg uagucuuccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45701
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAA02768

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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugucga 180

cuaaaaggaa uagccccacu acaauugggu aauugcagca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacuccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccaa aggaguaacg gcaucaugcu cccauaaugg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacgggg aagaauggcu uguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauagggg accaaagggc caucuaucau acagaaaaug cuuaugucuc uguagugucu 660

ucacauuaua gcaggagauu caccccagaa auagcaaaaa gacccaaagu aagaggucaa 720

gaaggaagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugacg cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuacag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac ggaauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugug ggcaaagaau ucaacaaauu agaaagaagg 1260

auggaauacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggauacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cgaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu uggucucccu gggggcaauc agcuucugga uguguucuaa uggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 45702
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAA02769

<400> 45702
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaguacu ugagaagaac 120

gugacaguga cacacucugu caaccuacuu gaggacaguc acaacggaaa acuaugucga 180

cuaaaaggaa uagccccacu acaauugggu aauugcagca uugccggaug gaucuuagga 240

aacccagaau gcgaaucacu guuuucuaag gaaucauggu ccuacauugc agaaacacca 300

aacuccgaga auggaacaug uuacccaggg uauuucgccg acuaugagga acugagggag 360

caauugaguu caguaucauc auucgagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccaa aggaguaacg gcaucaugcu cccauaaugg gaaaagcagu 480

uuuuacagaa auuugcuaug gcugacgggg aagaauggcu uguacccaaa ucugagcaag 540

uccuauguga acaacaaaga gaaagaaguc cuuguacuau gggguguuca ucacccgucu 600

aacauaaggg accaaagggc caucuaucau acagaaaaug cuuaugucuc uguagugucu 660

ucacauuaua gcaggagauu caccccagaa auagcaaaaa gacccaaagu aagagaucaa 720

gaaggaagaa uuaacuacua cuggacucug cuggaacccg gggacacaau aauauuugag 780

gcaaauggaa aucuaauagc gccaugguau gcuuucgcac ugaguagagg cuuuggguca 840

ggaaucauca ccucaaacgc aucaauggau gaaugugacg cgaaguguca aacaccccag 900

ggagcuauaa acaguagucu uccuuuccag aauguacacc cagucacaau aggagagugu 960

ccaaaguaug ucaggaguac aaaauuaagg augguuaaag gacuaaggaa caucccaucc 1020

auucaaucca gagguuuguu uggagccauu gccgguuuca uugaaggggg guggacugga 1080

augauagaug gaugguaugg uuaucaucau cagaaugaac aaggaucugg cuaugcugcg 1140

gaucaaaaaa gcacacaaaa ugccauuaac ggaauuacaa acaaggugaa uucuguaauc 1200

gagaaaauga acacucaauu cacagcugug ggcaaagaau ucaacaaauu agaaagaagg 1260

auggaauacu uaaauaaaaa aguugaugau ggauuucugg acauuuggac auauaaugca 1320

gaauuguugg uucuacugga aaaugaaagg acuuuggauu uucaugacuc aaaugugaag 1380

aaucuguaug agaaaguaaa aagccaauua aagaauaaug ccaaagaaau aggauacggg 1440

uguuuugaau ucuaccacaa guguaacaau gaaugcaugg aaagugugaa aaauggaacu 1500

uaugacuauc caaaauauuc cgaggaauca aaguuaaaca gggaaaaaau ugauggagug 1560

aaauuggaau caaugggagu cuaucagauu cuggcgaucu acucaacugu cgccaguuca 1620

cuggugcuuu ugguucuccu gggggcaauc agcuucugga uguguucuaa ugggucuuug 1680

caguguagaa uaugcaucug a 1701

<210> 45703
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__BAC43764

<400> 45703
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaagaacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaau ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucgcg ggccugugcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacaaagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu gauaauuugg ggggugcacc aucccauuga ugagacagaa 600

caaauaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcaacaagg ccuaaaguga auggacuagg aaguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucauaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucaggau augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucca augucaagaa ucuguaugau 1380

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uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguu aucaaauccu ugccauuuau gccacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca guucaggauc 1680

ugcauauga 1689

<210> 45704
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__BAE07201

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

ccagccaaug accucuguua cccaggggau uucaacgacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaauuc uugguccagu 420

caugaagccu cauuaggggu gagcucagca uguccauacc aaggaaaguc cuccuuuuuc 480

aggaaugugg uauggcuuau caaaaagaac aaugcauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua uuugggggga uucaccaucc uaaugaugcg 600

gcagagcaga cuaggcucua ucaaaaccca accaccuaca uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaaaugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagagcaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aauggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

agaagaagaa aaaagagagg auuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca augagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

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aguucccuag cacuggcaau caugguagcu ggucuaucuu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45705
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__BAH95823

<400> 45705
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaacaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu ugaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45706
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__BAH95824

<400> 45706
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45707
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ07997

<400> 45707

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguсuu acauagugga gaaggccaau 300

ccagccaaug accucuguua cccaggggau uucaacgacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaauuc uugguccagu 420

caugaagccu cauuaggggu gagcucagca uguccauacc aaggaaaguc cuccuuuuuc 480

aggaaugugg uauggcuuau caaaaagaac aaugcauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua uuugggggga uucaccaucc uaaugaugcg 600

gcagagcaga cuaggcucua ucaaaaccca accaccuaca uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagagcaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua guaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

agaagaagaa aaaagagagg auuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccauagca augagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

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ucguuacaau gcagaauuug cauuuaa 1707

<210> 45708
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__BAJ39949

<400> 45708
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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aaacuguugg uucuauugaa aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45709
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39950

<400> 45709
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugc ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45710
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39951

<400> 45710
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

uuucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45711
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39952

<400> 45711
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45712
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39953

<400> 45712
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

aaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45713
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39954

<400> 45713
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45714
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39955

<400> 45714
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

aguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcaggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

auuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguaaaa uauguauuua a 1701

<210> 45715
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39956

<400> 45715
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugc ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45716
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39957

<400> 45716
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45717
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39958

<400> 45717
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc aaaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45718
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39959

<400> 45718
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagccauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccguuu 1020

auucaaucua ggggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc aaaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45719
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39960

<400> 45719
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45720
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39961

<400> 45720
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45721
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39962

<400> 45721
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugc ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaacaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccguuu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc aaaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45722
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39963

<400> 45722
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45723
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39964

<400> 45723
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45724
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39965

<400> 45724
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45725
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39966

<400> 45725

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45726
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39967

<400> 45726
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacccaguu cacagcauua gguaaagagu ucaaccaccu ggaaaaaaaa 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45727
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39968

<400> 45727
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45728
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39969

<400> 45728
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45729
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39970

<400> 45729
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45730
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39971

<400> 45730
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagagguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua ggggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45731
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39972

<400> 45731
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45732
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39973

<400> 45732
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45733
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39974

<400> 45733
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45734
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39975

<400> 45734
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45735
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39976

<400> 45735
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgagaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggaaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aauuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45736
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__BAJ39977

<400> 45736

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45737
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39978

<400> 45737
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagaucu ucccuaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaacaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauu cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45738
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39979

<400> 45738
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa uggacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaauaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45739
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39980

<400> 45739
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45740
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39981

<400> 45740
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuauccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ccucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ucaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc aaaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45741
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39982

<400> 45741
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacauuacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa gcuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45742
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39983

<400> 45742
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gaucuuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugc ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45743
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39984

<400> 45743

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45744
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39985

<400> 45744
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45745
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39987

<400> 45745
augaagacaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc aaaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45746
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39988

<400> 45746
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuauccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag caucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ucaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaucacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45747
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39989

<400> 45747
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaaugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45748
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39990

<400> 45748
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45749
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39993

<400> 45749
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45750
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39994

<400> 45750
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaccacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcuugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45751
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39996

<400> 45751
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45752
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39997

<400> 45752
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaccacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45753
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ39998

<400> 45753
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45754
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__BAJ39999

<400> 45754

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45755
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40000

<400> 45755
augaagacaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45756
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40001

<400> 45756
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45757
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40002

<400> 45757
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45758
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40003

<400> 45758
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45759
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40004

<400> 45759
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugaaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45760
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40006

<400> 45760
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45761
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40007

<400> 45761

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45762
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40008

<400> 45762
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuccugg acauuuggac uuacauugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45763
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40009

<400> 45763
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa uggacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaauaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45764
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40010

<400> 45764
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa uggacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45765
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40011

<400> 45765
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45766
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40012

<400> 45766
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua ggggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu uuaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggaua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45767
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40013

<400> 45767
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45768
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40014

<400> 45768
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45769
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40015

<400> 45769
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaauac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45770
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40016

<400> 45770
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45771
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40017

<400> 45771
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua ggggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ggccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45772
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__BAJ40018

<400> 45772

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45773
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40019

<400> 45773
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uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45774
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40020

<400> 45774
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uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45775
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40021

<400> 45775
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugaaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45776
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40023

<400> 45776
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45777
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40024

<400> 45777
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45778
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40025

<400> 45778
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45779
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40026

<400> 45779

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45780
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40027

<400> 45780
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa aggugaaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45781
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40028

<400> 45781
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgcuuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45782
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40029

<400> 45782
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug aucaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45783
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40030

<400> 45783
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uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaaaagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45784
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40031

<400> 45784
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45785
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40032

<400> 45785
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45786
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40033

<400> 45786
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaaaagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45787
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40034

<400> 45787
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45788
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40035

<400> 45788
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaac 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aaaauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45789
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40036

<400> 45789
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacaaua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaaa gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaaa aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45790
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40037

<400> 45790
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45791
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40038

<400> 45791
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacaaua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45792
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40039

<400> 45792
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac uaguucaugg 420

cccaaucaug acucgaacaa aggcguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacuau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gguugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45793
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40040

<400> 45793
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uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggauau 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45794
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40041

<400> 45794
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguaugg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45795
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40042

<400> 45795
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uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaaaagag 360

ccauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accgacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45796
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40043

<400> 45796
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45797
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40044

<400> 45797

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcaaaaagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaauaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45798
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40045

<400> 45798
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uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45799
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40046

<400> 45799
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu agauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

auuucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaaaagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaaa 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

aaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaaa 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45800
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40047

<400> 45800
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaaaagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45801
<211> 1701
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40048

<400> 45801
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45802
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40050

<400> 45802
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaaaagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa ugucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45803
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40051

<400> 45803
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucuuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaauuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45804
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40052

<400> 45804
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uguauagguu aucaugcgaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggagacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gagagaaguc cuugugcuau ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45805
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40053

<400> 45805
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaac 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca augggacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccaucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45806
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40054

<400> 45806
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cugagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45807
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40055

<400> 45807
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuaguacug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caauuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

guucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45808
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40056

<400> 45808
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaauuacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcaaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagacau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac aauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagccc aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accaugauuc auaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45809
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40057

<400> 45809
augaaggcaa uacuaguagu ucugcuauac acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acgaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaaguguaaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45810
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40058

<400> 45810
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcugguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45811
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40059

<400> 45811
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaggaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45812
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40060

<400> 45812
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45813
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40061

<400> 45813
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45814
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40062

<400> 45814
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauug auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaaa 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguaaaa uauguauuua a 1701

<210> 45815
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40063

<400> 45815

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggagg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45816
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAJ40064

<400> 45816
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uguauagguu aucaugcgaa caauucgaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45817
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAK23398

<400> 45817
auggagaaaa uagugcuucu ucuugcaaua gucagucuug uuaaaaguga ucagauuugc 60

auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggguggcu ccucgggaau 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagucaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucuucc ccaaaaguuc uuggucagac 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuugu caaaaaggac aaugcauacc caacaauaaa gaaaaguuac 540

aauaauacca accaagaaga ccuuuugaua cugugggggga uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaaugg gcaaagugga 720

aggauugagu ucuuuuggac aauuuuaaaa ucgaaugaug uaauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucgaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag gcuuuauaga gggaggaugg 1080

cagggaaugg uagacgguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa uaagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaaaaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaagagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugauggcu ggucuauuuu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45818
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAK23400

<400> 45818
auggagaaaa uagugcuucu ucuugcaaua gucagucuug uuaaaaguga ucaaauuugc 60

auugguuacc augcaaacaa cucgacagaa cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaagcu augcgaucua 180

aauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccaggggau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagcau cgucaggagu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa aagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc gaaugaugcg 600

gcagagcaga caaggcucua ucauaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaaugg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ccgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caagcagauu aguccuugcu acugggcuca gaaauagucc ucaaggaaag 1020

aguagaagaa aaaagagagg acuauuugga gcuauagcag gguuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaagggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

guuaagaauc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggc 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaauuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45819
<211> 1707
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAK23401

<400> 45819
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acuguuacac acgcucaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugucg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccguuu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cacuaggagu gagcucagca uguccauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caauaauaaa gaaaaguuac 540

cauaauacca aucaagaaga ucuuuuggug cugugggggga uucaucaucc aaaugaugag 600

gaagagcaga caaggaucua uaaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcc acuagaucua agguaaacgg gcaaagugga 720

aggguggagu ucuuuuggac aauuuuaaaa ucaaaugaua caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaggggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacau ucaguuugag gcuguuggaa gggaauuuaa uaacuuggaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagauuuuca ugacucaaau 1380

gucaagaacc uuuaugacaa ggugcgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugc gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacuau caauuuauuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45820
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAK23402

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaauguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguua agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaaugguuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucaaau 420

caugaagccu caucaggagu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gauaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggga uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

uuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacacc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucauggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca aggaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45821
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAK23403

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaauguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguua agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucaaau 420

caugaagccu caucaggagu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gauaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggga uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

uuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aggaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45822
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__BAK23404

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggagu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc gaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccggcua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45823
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAK23405

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaaugucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggagu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggga uucaccaucc gaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45824
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAK23406

<400> 45824
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggguggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagucaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucuucc ccaaaaguuc uuggucagac 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuugu caaaaaggac aaugcauacc caacaauaaa gaaaaguuac 540

aauaauacca accaagaaga ucuuuugaua cugugggggа uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaacgg gcaaagugga 720

aggauugagu ucuuuuggac aauuuuaaaa ucgaaugaug uaauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag gcuuuauaga gggaggaugg 1080

cagggaaugg uagacgguug guaugggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa uaagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaaaaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaagagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugauggcu ggucuauuuu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45825
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAK23407

<400> 45825
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auugguuacc augcaaacaa cucaacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcucaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugucg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccguuu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcgcagca uguccauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaga gaaaaguuac 540

cauaauacca aucaagaaga ucuuuuggug cugugggggga uucaccaucc aaaugaugag 600

gcagagcaga caaggaucua uaaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcc acuagaucua agguaaacgg gcaaagugga 720

aggguggagu ucuuuuggac aauuuuaaaa ucaaaugaua caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaggu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuggaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggugcgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugc gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacuau caauuuauuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45826
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from hemagglutinin__InfluenzaA__BAK23408

<400> 45826

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auugguuacc augcaaacaa cucaacagag caaguugaca caauaaugga aaagaacguc 120

acuguuacac acgcucaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccc caaugugucg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccguuu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcucagca ugucaauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaaguuac 540

cauaauacca auaaagaaga ucuuuuggua cugugggggа uucaccaucc aaauaaugag 600

gaagagcaga caaagcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcu acuagaucua agguaaacgg gcaaagugga 720

aggguggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacuac aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaagu caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa agucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa aggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggugcgacua cagcuuaggg auaacgcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucugaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaagu uggagucaau aggaacuuac caaauacugu caauuuacuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45827
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__BAK23411

<400> 45827
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auugguuacc augcaaacaa cucaacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcucaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugucg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccguuu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcucagca ugucaauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaaguuac 540

cauaauacca auaaagaaga ucuuuuggua cugugggggga uucaccaucc aaauaaugag 600

gaagagcaga caaagcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcu acuagaucua agguaaacgg gcaaagugga 720

aggguggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaagu caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa agucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa aggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggugcgacua cagcuuaggg auaacgcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucugaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaagu uggagucaau aggaacuuac caaauacugu caauuuacuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45828
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
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auugguuacc augcaaacaa cucaacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcucaaga cauacuggaa aagacacaca aagggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugucg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccguuu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcucagca ugucaauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaaggac aauacauacc caacaauaaa gaaaaguuac 540

cauaauacca auaaagaaga ucuuuuggua cugugggggga uucaccaucc aaauaaugag 600

gaagagcaga caaagcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcu acuagaucua agguaaacgg gcaaagugga 720

aggguggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaagu caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa agucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa aggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggugcgacua cagcuuaggg auaacgcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucugaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaagu uggagucaac aggaacuuac caaauacugu caauuuacuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45829
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<212> RNA
<213> Artificial Sequence

<220>
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auugguuacc augcaaacaa cucaacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcucaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugucg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccguuu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcucagca ugucaauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaaggac aauacauacc caacaauaaa gaaaaguuac 540

cauaauacca auaaagaaga ucuuuuggua cugugggggа uucaccaucc aaauaaugag 600

gaagagcaga caaagcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcu acuagaucua agguaaacgg gcaaagugga 720

aggguggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaagu caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa agucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa aggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggugcgacua cagcuuaggg auaacgcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucugaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaagu uggagucaau aggaacuuac caaauacugu caauuuacuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45830
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__BAK23414

<400> 45830
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auugguuacc augcaaacaa cucaacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcucaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugucg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccguuu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcucagca ugucaauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaaguuac 540

cauaauacca auaaagaaga ucuuuuggua cugugggggа uucaccaucc aaauaaugag 600

gaagagcaga caaagcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcu acuagaucua agguaaacgg gcaaagugga 720

aggguggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaagu caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa agucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa aggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggugcgacua cagcuuaggg auaacgcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucugaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaagu uggagucaau aggaacuuac caaauacugu caauuuacuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45831
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAM65746

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uguauaggcu accaugccaa caacucaacc gauacuguug acacauuacc cgagaagaau 120

gugacaguga cacacucugu caaccugcuu gaggacacuc acaaugggaa auuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccggaug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccagg gaaucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaauaug uuacccaggg cauuucgccg acuaugagga acugagggaa 360

caacugaguu caguaucuuc auuugagaga uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaua ccgcaaccgg aguaucagca ucaugcuccc auaaugggaa aagcaguuuu 480

uacaaaaacu ugcuguggcu gacggugaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagagaa agaaguccuu gugcuauggg guguucauca cccgacuaac 600

auaggugacc aaagggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaagauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca acuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcg uucgcacuga guaggggcuu uggaucagga 840

aucaucaaau caaaugcacc aauggaugaa uguaaugcga agugccaaac accucaggga 900

gccauaaaca gcagucuucc uuuccagaau guacacccag ucacaauagg agagugucca 960

aaguauguca ggaguacaaa auuaaggaug guuacaggac uaaggaacac cccauccauu 1020

caaucuagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaccaucaa aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcuguggac aaagaauuca acaaacugga aagaaggaug 1260

gaaaacuuua auaaaaaggu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

uuguugauuc uacuggaaaa ugaaaggacu cuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaauagg aaauggaugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaaaaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucuaug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuugcag 1680

uguagaauau gcaucuag 1698

<210> 45832
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAO79716

<400> 45832
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcaacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagcauac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguccaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugaggucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguaccg 1020

gagaaacaaa cuagaggcau auuuggcgcc auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca aucagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaagggg 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45833
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__CAB95856

<400> 45833

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aucugcaucg gccaccaguc aacaaacucc acagaaacug uggacacgcu aacagaaacc 120

aauguuccug ugacacaugc caaagaauug cuccacacag agcauaaugg aaugcugugu 180

gcaacaagcc ugggacaucc ccucauucua gacacaugca cuauugaagg acuagucuau 240

ggcaacccuu cuugugaccu gcuguuggga ggaagagaau gguccuacau cgucgaaaga 300

ucaucagcug uaaauggaac guguuacccu gggaauguag aaaaccuaga ggaacucagg 360

acacuuuuua guuccgcuag uuccuaccaa agaauccaaa ucuucccaga cacaaccugg 420

aaugugacuu acacuggaac aagcagagca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaagagcgg uuuuuacccu guucaagacg cccaauacac aaauaacagg 540

ggaaagagca uucuuuucgu gugggcaua caucacccac ccaccuauac cgagcaaaca 600

aauuuguaca uaagaaacga cacaacaaca agcgugacaa cagaagauuu gaauaggacc 660

uucaaaccag ugauagggcc aaggccccuu gucaaugguc ugcagggaag aauugauuau 720

uauuggucgg uacuaaaacc aggccaaaca uugcgaguac gauccaaugg gaaucuaauu 780

gcuccauggu auggacacgu ucuuucagga gggagccaug gaagaauccu gaagacugau 840

uuaaaaggug guaauugugu agugcaaugu cagacugaaa aagguggcuu aaacaguaca 900

uugccauucc acaauaucag uaaauaugca uuuggaaccu gccccaaaua uguaagaguu 960

aauagucuca aacuggcagu cggucugagg aacgugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcuggauu cauagaagga gguuggccag gacuagucgc uggcugguau 1080

gguuuccagc auucaaauga ucaagggguu gguauggcug cagauaggga uucaacucaa 1140

aaggcaauug auaaaauaac auccaaggug aauaauauag ucgacaagau gaacaagcaa 1200

uaugaaauaa uugaucauga auucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauaca agacguaugg gcauauaaug cagaauugcu aguacuacuu 1320

gaaaaucaaa aaacacucga ugagcaugau gcgaacguga acaaucuaua uaacaaggug 1380

aagagggcac ugggcuccaa ugcuauggaa gaugggaaag gcuguuucga gcuauaccau 1440

aaaugugaug aucagugcau ggaaacaauu cggaacggga ccuauaauag gagaaaguau 1500

agagaggaau caagacuaga aaggcagaaa auagaggggg uuaagcugga aucugaggga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugcu ugcaaugggg 1620

uuugcugccu uccuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 45834
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<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__CAB95857

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aauguuccug ugacacaugc caaagaauug cuccacacag agcacaaugg aaugcugugu 180

gcaacaaguc ugggacaucc ccucauucua gacacaugca cuauugaagg auuagucuau 240

ggcaacccuu cuugugaccu gcuguuggaa ggaagagaau gguccuacau cgucgaaaga 300

ucaucagcug uaaauggaac guguuacccu gggaauguag aaaaccuaga ggaacucagg 360

acacuuuuua guuccgcuag uuccuaccaa agaauccaaa ucuucccaga cacaaccugg 420

aaugugacuu acacuggaac aagcagagca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaagagcgg uuuuuacccu guucaagacg cccaauacac aaauaacagg 540

ggaaagagca uucuuuucgu gugggcaua caucacccac ccaccuauac cgaacaaaca 600

aauuuguaca uaagaaacga cacaacaaca agcgugacaa cagaagauuu gaauaggacc 660

uucaaaccag ugauagggcc aaggccccuu gucaaugguc ugcagggaag aauugauuau 720

uauuggucgg uacuaaaacc aggccaaaca uugcgaguaa gauccaaugg gaaucuaauu 780

gcuccauggu auggacacgu ucuuucagga gggagccaug gaagaauccu gaagacugau 840

uuaaaaagug guaauugugu agugcaaugu cagacugaaa aagguggcuu aaacaguaca 900

uugccauucc acaauaucag uaaauaugca uuuggaaccu gccccaaaua uguaagaguu 960

aauagucuca aacuggcagu cggucugagg aacgugccug cuagaucaag uagaggacua 1020

uuuggagcca uagcuggauu cauagaagga gguuggccag gacuagucgc uggcugguau 1080

gguuuccagc auucaaauga ucaagggguu gguauggcug cagauaggga uucaacucaa 1140

aaggcaauug auaaaauaac auccaaggug aauaauauag ucgacaagau gaacaagcaa 1200

uaugaaauaa uugaucauga auucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug accaaauaca agacguaugg gcauauaaug cagaauugcu aguacuacuu 1320

gaaaaucaga aaacacucga ugagcaugau gcgaacguga acaaucuaua uaacaaggug 1380

aagagggcac ugggcuccaa ugcuauggaa gaugggaaag gcuguuucga gcuauaccau 1440

aaaugugaug aucagugcau ggaaacaauu cggaacggga ccuauaauag gagaaaguau 1500

agagaggaau caagacuaga aaggcagaaa auagaggggg uuaagcugga aucugaggga 1560

gcuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugcu ugcaaugggg 1620

uuugcugccu uccuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 45835
<211> 1707
<212> RNA
<213> Artificial Sequence

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hemagglutinin__InfluenzaA__CBW54815

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acuguuacac acgcucaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccc caaugugucg gaaugguccu acauagugga gaagaccaau 300

ccagccaaug accucuguua cccagggaau uucgacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccgguu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcucagca uguccauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa ggaaaguuac 540

cauaauacca aucaagaaga ucuuuuggug cugugggggga uccaccaucc aaaugaugag 600

gaagagcaga caagaaucua uaaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcc acuagaucua agguaaacgg gcaaagugga 720

agaguggagu ucuuuuggac aauuuuaaaa ucaaaugaua caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc agcaccaaau gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

ggaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aggaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacuca 1200

aucauugaca aaaugaauac ucaguuugag gcuguuggga gggaauuuaa uaacuuggaa 1260

aagagaauag aaaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggugcgacua cagcuuaggg acaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugc gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacuau caauuuacuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

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<211> 1707
<212> RNA
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acuguuacac acgcucaaga cauacuggaa aagacacaca augggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccc caaugugucg gaaugguccu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccguuu ugagaaaauu cagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcucagca uguccauacc agagaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaagaac gauacauacc caacaauaaa ggaaaguuac 540

cauaauacca aucaagaaga ucuuuuggug cugugggga uccaccaucc aaaugaugag 600

gaagagcaga aaaggaucua uaaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcc acuagaucua agguaaacgg gcaaagugga 720

agaguggagu ucuuuuggac aauuuuaaaa ucaaaugaua caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc agcaccaagu gucaaacucc aauaggggcg 900

auaaacacca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuua gaaauagccc ucaaggagag 1020

ggaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagua acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaauac ucaguuugag gcuguuggga gggaauuuaa uaacuuggaa 1260

aagagaauag aaaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaggaacc uuuacgacaa ggugcgacua cagcuuaggg acaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugc gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacuau caauuuauuc aacaguggca 1620

aguucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuga 1707

<210> 45837
<211> 1707
<212> RNA

<213> Artificial Sequence

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hemagglutinin__InfluenzaA__CBW54818

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auugguuacc augcaaacaa cucaacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcucaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccc caaugugucg gaaugguccu acauagugga gaagaccaau 300

ccagccaaug accucuguua cccagggaau uucaacaacu augaagagcu gaaacaccua 360

uugagcagaa uaaaccgguu ugagaaaauu aagaucaucc ccaaaaguuc uuggccagau 420

caugaagccu cauuaggagu gagcucagca uguccauacc agggaggacc cuccuuuuau 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa ggaaaguuac 540

cauaauacca aucaagaaga ucuuuuggug cugugggggga uccaccaucc aaaugaugag 600

gaagagcaga caaggaucua uaaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaagauagcc acuagaucua agguaaacgg gcagagugga 720

agaguggagu ucuuuuggac aauuuuaaaa ucaaaugaua caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc agcaccaagu gucaaacucc aguaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca ggaauagccc ucaaggagag 1020

ggaagaagaa aaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca gagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacuca 1200

aucauugaca aaaugaauac ucaguuugag gcuguuggaa gggaauuuaa uaacuuggaa 1260

aagagaauag aaaauuuaaa caagaagaug gaagacgggu uucuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggugcgacua cagcuuaggg acaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugc gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacuau caauuuauuc aacaguggca 1620

aguucccuag cacuggcaau cauaguggcu ggucuacuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45838
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__CCG47908

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ggaaagggca acaacacagc aacacugugc cugggacauc augcagugcc aaauggaaca 120

cuagugaaaa caaucacaga ugaucagauc gaaguaacca augcuacaga acugguucag 180

aauuucucaa uggguaaaau augcaagaau ccucaucgaa uucuugaugg ggcaaauugc 240

acacugauag acucucuauu gggggacccu cauugugaug guuuucaaga ugagaaaugg 300

gaccuuuuca uugaacgcag caaggcuuuc agcaacuguu acccuuauga ugugccggag 360

uauaccuccc uuaggucaau aauugccucg ucaggcaccu uggaauuuac caaugaagau 420

uucaauugga cugggggucac ccagaaugga ggaagcagug cuugcaagag ggggccuaac 480

aacagcuuuu ucaguaggcu gaacuggcug uacaaaucgg guaacacaua uccgaugcua 540

aauguuacua ugccaaacag ugaugauuuu gacaaauugu acauuuggggg gguucaucau 600

ccgaguaccg auagagaaca gaccaaccug uauauucaag caucagggaa aauaauaguu 660

ucuacaaaga gaagucaaca aaccauaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguuugucua guaggauaag caucuacugg acaauaguua aaccagggga cauccugaua 780

aucaacagca auggaaaccu aauugcuccu cgagguuacu ucaaaauaca gacugggaaa 840

agcucaguaa ugagaucaga ugcaccuauu gacaccugca auucugaaug cauuacucca 900

aacggaagca uacccaauga caaaccuuuu caaaacguaa acaggaucac auaugggggca 960

uguccccaaau acaucaagca aaacacucug aaguuggcaa cagggaugcg gaauauacca 1020

gaaagacaaa cuagagguau auucggugca auagcagggu ucauagagaa ugguugggaa 1080

ggaaugguga acgguuggua cgguuucagg caccaaaauu cugagggcau aggacaagca 1140

gcagaucuua aaaguaccca agcagcuauc aaccaaauca augggaaacu gaauagagua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aguucucaga aguagaagga 1260

agaauccaag accucgaaag auauguugaa gauacuaaga uagaucuuug gucuuacaac 1320

gcggaacuuc uugucgcgcu agagaaucaa cacacaauug accugacuga cucagaaaug 1380

aacaaacucu uugaaaaaac aagaaaacaa cugagggaaa augcugagga uaugggaaau 1440

gguugcuuca aaauauacca caaaugugac aacucuugca uggagucaau cagaaaugga 1500

acuuacgacc auaacgaaua cagagacgaa gcaguaaaca accgauuuca gaucaaaagu 1560

guugagcuga agucaggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu gugcuguuug gcugggauuc auaauauggg ccugccagaa aggcaacauu 1680

aggugcaaca uuugcaucug a 1701

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<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> hemagglutinin__InfluenzaA_ _AAB39851

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uguauagguu aucaugcaaa uaauucaacu gacacuguug auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucuu gaagacagac auaacgggaa acuauguaaa 180

cugggggga uagccccauu gcacuugggu aaauguaaca uugccgguag gcuuuuggga 240

aacccagaau gugaauuacu acucacagua agcucauggu cuuacauugu ggaaacaucg 300

aaaucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcugagagag 360

caguugagcu cagugucauc auuugaaaga uucgagauau uccccaagac aaguucgugg 420

cccaaucaug aaacaaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcuggugaaa aaagaaaauu cauacccaaa gcucagcaaa 540

uccuauguua acaauaaagg gaaggaaguc cuugugcuau ggggcauuca ucauccaccu 600

accaguacug aucaacaaag ucucuaccaa aaugcagaug ccuauguuuu uguaggguca 660

ucaaaauaua acagaaaguu caagccagaa auagcagcaa gacccaaggu gagaggucaa 720

gcagggagga ugagcuauua cuggacacua auagaaccug gagacacaau aacauuugaa 780

gcaacuggaa aucuaguggu accaagauau gcuuucgcaa ugaauagagg uucuggaucu 840

gguauuauaa uuugggaugc accaguucau gauuguaaca cgaaguguca aacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uguccgucu 1020

auucaaucua gaggucuguu uggagccauu gcugguuuua uugagggggg auggacagga 1080

augauagaug gaugguaugg uuaucaccau cagaaugaac agggaucagg auaugcagcg 1140

gaccaaagga gcacacaaaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacgcaauu cacggcagug gguaaagaau ucaaccacuu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acucuggauu uccacgacuc gaauguaaag 1380

aaccuguaug agaaaguaag aagccagcua aggaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau ucuaucacaa augugaugau acaugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaguacuc agaagaauca aagcuaaaca gagaggagau agauggagua 1560

aaguuggagu caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uggucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 45840
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__AAA43178

<400> 45840
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gauucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

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gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga gaugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggu 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45841
<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AAA43185

<400> 45841
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa aucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu uuucaggaac 480

auggucuggc ugacaaagga aggaucagau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccauuga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcaacaagg ccuaaaguga auggacaagg agguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccaa ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaggaauuc gguaacuuag agagaagacu ggagaacuug 1260

aacaaaagga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggguuu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 45842
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AAA43187

<400> 45842
augaagacca uuauugcuuu gagccacauu uucugucugg uucucggcca auaccuucca 60

ggaaaugaca acagcacagc aacgcugugu cugggacauc augcagugcc aaacggaaca 120

cuagugaaaa caaucacaaa ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug guuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu accccuauga ugugccagau 360

uaugccuccc uuagaucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cuggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag aaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg aguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agcccgggga cguacuggua 780

auuaauagua augcgaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaacga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cacggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaucaaauca augggaaauu gaacagggua 1200

aucgagaaga caaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcagagcuuc uugucgcucu ggagaaucaa cauacaauug aucugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacga caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45843
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AAA43209

<400> 45843
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uguauaggcu accaugcgaa caacucaacc gacacuguug acacaauauu cgagaagaau 120

guggcaguga cacauucugu uaaccugcuc gaagacagac acaacgggaa acuauguaaa 180

uuaaaaggaa uagccccacu acaauugggg aaauguaaca ucaccggaug gcucuuggga 240

aauccagaau gcgacucacu gcuuccagcg agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggagcaug uuauccagga gauuucaucg acuaugagga acugagggag 360

caauugagcu caguaucauc auuagaaaga uucgaaauau uucccaagga aaguucaugg 420

cccaaccaca cauucaacgg aguaacagua ucaugcuccc auaggggaaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacgaagaag ggggauucau acccaaagcu gaccaauucc 540

uaugugaaca auaaagggaa agaaguccuu guacuauggg guguucauca cccguccagc 600

agugaugagc aacagagucu cuauaguaau ggaaaugcuu augucucugu agcgucuuca 660

aauuauaaca ggagauucac cccggaaaua gcugcaaggc ccaaaguaaa agaucaacau 720

gggaggauga acuauuacug gaccuugcua gaacccggag acacaauaau auuugaggca 780

acugguaauc uaauagcacc augguaugcu uucgcacuga guagaggguu ugaguccggc 840

aucaucaccu caaacgcguc aaugcaugag uguaacacga agugucaaac accccaggga 900

ucuauaaaca gcaaucuccc uuuccagaau auacacccag ucacaauagg agagugccca 960

aaauauguca ggaguaccaa auugaggaug guuacaggac uaagaaacau cccauccauu 1020

caauacagag gucuauuugg agccauugcu gguuuuauug agggggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacagaaugc cauuaacggg auuacaaaca aggugaacuc uguuaucgag 1200

aaaaugaaca cucaauucac agcugugggu aaagaauuca acaacuuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugauggg uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaagaacu uuggauuucc augacuuaaa ugugaagaau 1380

cuguacgaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaaugggugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccaa aauauucaga agaaucaaag uugaacaggg aaaagauaga uggagugaaa 1560

uuggaaucaa ugggggugua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg gucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 45844
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

hemagglutinin__InfluenzaA__AAC40998

<400> 45844

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aucugccuug ggcaucaugc cgugucaaac ggggcuaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaacg guggaacgaa caaauguccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uucugggaac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga aagacgggaa 300

ggaaaugaug ucuguuaucc ugggaaauuu gugaaugaag aagcucugag gcaaauucuc 360

agaaaaucag gcggaauuga uaaggagaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcuga gaugaaaugg 480

cuucugucaa acacagacaa cgcugcuuuc ccgcagauga cuaagucaua caaaaacaua 540

aggaaagacc cagcucugau aauaugggga auccaucauu ccggaucaac ugcagagcag 600

accaaguuau augggagugg aaacaaacua auaacagucg ggaguuccaa uuaucaacag 660

ucuuucguac cgaguccggg agcgagacca caagugaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugac acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag uuuucugaga ggaaagucca ugggaauuca gagugaggua 840

cagguugaug ccaauuguga aggagauugc uaucauagug gagggacaau acuaaguagu 900

uugccuuuuc agaacaucaa uagcagaaca guaggggaau guccgaggua uguuaagcaa 960

gaaagucugc uauuggcaac agggaugaag aacguuccug agauuccaaa aggaagaggc 1020

cuauuuggug ccauagcggg uuucauugaa aauggauggg aaggucuggu ugauggaugg 1080

uauggcuuca ggcaucaaaa ugcacaaggg gagggaacug cugcagauua caagagcacc 1140

caaucggcaa uugaucaaau aacagggaaa uuaaaccguc uuauagagaa aacuaaucaa 1200

caauuugagu ugauagacaa ugaauucacu gagguugaaa agcaaauugg caaugugaua 1260

aauuggacua gagauuccuu gacagaaaug ugguccuaua augcugaacu cuugguagca 1320

auggagaauc agcacacaau cgaucuggcc gacucagaaa ugaacaaacu auaugaacga 1380

gugaggagac aauugagaga aaaugcugag gaagauggca cugguugcuu cgaaauauuc 1440

cacaagugug augaugacug uauggccagc auuaggaaua acaccuauga ucacagcaag 1500

uacagagaag aagcaauaca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 45845
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AAC40999

<400> 45845
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aucugccuug ggcaucaugc cgugucaaac gggaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucguuaaugc aacugaaacg guggaacgaa caaacguccc caggaucugc 180

ucaaaaggga aaagaacagu ugaccucggu caauguggac uucugggaac aaucacuggg 240

ccaccccaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga aagacgagaa 300

ggagaugaug ucuguuaucc ugggaaauuu gugaaugaag aagcucugag gcaaauucuc 360

agggaaucag gcgggauuga uaaggagaca augggauuca cauacagcgg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcuga gaugaaaugg 480

cuucugucaa acacagacaa ugcugccuuc ccgcagauga cuaagucaua caaaaacaua 540

aggaaagacc cagcucugau aauaugggga auccaucauu cuggaucaac ugcagagcag 600

accaaguuau augggagugg aaacaaacua auaacagucg ggaguuccaa uuaucaacag 660

ucuuuuguac cgauuccagg agcgagacca caagugaaug gccaaucugg aaggauugac 720

uuucauuggc ugaugcuaaa ccccaaugac accgucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcgag uuuucugaga ggaaagucca ugggaauuca gagugaggua 840

cagguugaug ccaauuguga aggagauugc uaucauagug gagggacaau acuaaauaau 900

uugccuuuuc agaauaucaa uggcagagca guagggaaau guccgaggua uguuaagcaa 960

gaaagucugc uacuggcaac agggaugaag aacguuccug agauuccaaa aggaagaggc 1020

cuauuuggug ccauagcggg uuucauugaa aauggauggg aaggucuggu ugauggaugg 1080

uauggcuuca ggcaucaaaa ugcacaaggg gagggaacug cugcagauua caagagcacc 1140

caaucggcaa uugaucaaau aacagggaag uuaaaccguc uuauagagaa aacuaaucaa 1200

caauuugagu ugauagacaa ugaauucacu gagguugaaa agcaaauugg caaugugaua 1260

aauuggacca gagauuccau gacagaggug ugguccuaua augcugaacu cuugguagca 1320

auggagaauc agcacacaau cgaucuggcc gacucagaaa ugaacaaacu auaugaacga 1380

guaaggagac aauugagaga gaaugcugag gaagauggca cugguugcuu cgaaauauuc 1440

cacaagugug augacgacug uauggccagc auuaggaaua acaccuauga ucacagcaag 1500

uacagagaag aagcaauaca aaauagaaua cagauugacc cagucaaacu gagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuggccauu 1620

gcaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 45846
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACA28844

<400> 45846
augaaaguaa aacuacuggu ccuguuaugc acauuuacag cuacauaugc agacacaaua 60

uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auaggugacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aagggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggg aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 45847
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACA28844/m1

<400> 45847
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uguauaggcu accaugcuaa caacucgacc gacacuguug acacaguacu ugaaaagaau 120

gugacaguga cacacucugu caaccugcuu gagaacaguc acaauggaaa acuaugucua 180

uuaaaaggaa uagccccacu acaauugggu aauugcagcg uugccgggug gaucuuagga 240

aacccagaau gcgaauuacu gauuuccaag gagucauggu ccuacauugu agaaaaacca 300

aauccugaga auggaacaug uuacccaggg cauuucgcug acuaugagga acugagggag 360

caauugaguu caguaucuuc auuugagagg uucgaaauau uccccaaaga aagcucaugg 420

cccaaccaca ccguaaccgg agugucagca ucaugcuccc auaaugggga aagcaguuuu 480

uacagaaauu ugcuauggcu gacggggaag aaugguuugu acccaaaccu gagcaagucc 540

uaugcaaaca acaaagaaaa agaaguccuu guacuauggg guguucauca cccgccaaac 600

auagguaacc aaaaggcccu cuaucauaca gaaaaugcuu augucucugu agugucuuca 660

cauuauagca gaaaauucac cccagaaaua gccaaaagac ccaaaguaag agaucaagaa 720

ggaagaauca auuacuacug gacucugcuu gaacccgggg auacaauaau auuugaggca 780

aauggaaauc uaauagcgcc aagauaugcu uucgcacuga guagaggcuu uggaucagga 840

aucaucaacu caaaugcacc aauggauaaa ugugaugcga agugccaaac accucaggga 900

gcuauaaaca gcagucuucc uuuccagaac guacacccag ucacaauagg agagugucca 960

aaguauguca ggagugcaaa auuaaggaug guuacaggac uaaggaacau cccauccauu 1020

caauccagag guuuguuugg agccauugcc gguuucauug aaggggggug gacuggaaug 1080

guagaugguu gguaugguua ucaucaucag aaugagcaag gaucuggcua ugcugcagau 1140

caaaaaagca cacaaaaugc cauuaauggg auuacaaaca aggugaauuc uguaauugag 1200

aaaaugaaca cucaauucac agcaguggggc aaagaauuca acaaauugga aagaaggaug 1260

gaaaacuuga auaaaaaagu ugaugauggg uuuauagaca uuuggacaua uaaugcagaa 1320

cuguugguuc uacuggaaaa ugaaaggacu uuggauuucc augacuccaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaguuaaag aauaaugcua aagaaauagg aaaugggugu 1440

uuugaauucu aucacaagug uaacgaugaa ugcauggaga guguaaagaa uggaacuuau 1500

gacuauccaa aauauuccga agaaucaaag uuaaacaggg agaaaauuga uggagugaaa 1560

uuggaaucaa ugggagucua ucagauucug gcgaucuacu caacagucgc caguucucug 1620

guucuuuugg ucucccuggg ggcaaucagc uucuggaugu guuccaaugg gucuuuacag 1680

uguagaauau gcaucuaa 1698

<210> 45848

<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACV82259

<400> 45848
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagacguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45849
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACV82259/m1

<400> 45849
augaaggcaa uacugguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

accagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagacguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacug guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45850
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ACV82259/m2

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucggacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

accagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagacguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacug guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45851
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACP41953

<400> 45851

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45852
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AFM72832

<400> 45852
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45853
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI516528

<400> 45853
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

cacuguagaa uauguguuua a 1701

<210> 45854
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AGM53850

<400> 45854
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45855
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI731463

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaauac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45856
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI696972

<400> 45856
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagacguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45857
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI662594

<400> 45857
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuuaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45858
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI685579

<400> 45858
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuuaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45859
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI830230

<400> 45859
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcuuaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagauguu caagccggaa auagcaacaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguuccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaauggaacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45860
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ACQ45338

<400> 45860
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45861
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACQ45338/m1

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaagagc 480

uucuacaaaa auuuaauaug gcuaguuaag aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

accagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacccua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggcgg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccucaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaagaga 1260

auagagaauu uaaauaagaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aagaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45862
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

hemagglutinin__InfluenzaA__ACQ45338/m2

<400> 45862

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45863
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACU79871

<400> 45863
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagaa gaagccagca aacuauaauc ccgaauaucg gguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45864
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACU79871/m1

<400> 45864
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ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucagucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguuggggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaagu gaacaggaua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaguggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45865
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI643118

<400> 45865
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaaauuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucauagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaacuacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45866

<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45866
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45867
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI578430

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45868
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI614406

<400> 45868
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45869
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACU65077/m1

<400> 45869

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuggggu gagcucagca uguccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaacgagag 1020

acgcgaggau uauuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu auggguacca ccauagcaac gagcagggga gugggguacgc ugcagacaaa 1140

gaauccacuc aaaaggcaau agauggaguc accaauaagg ucaacucgau uauugacaaa 1200

augaacacuc aguuugaggc cguuggaagg gaauuuaaca acuuagaaag gagaauagag 1260

aauuuaaaca agaagaugga agacggguuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cuaguucuca uggaaaacga gagaacucua gacuuucaug acucaaaugu caagaaccuu 1380

uacgacaagg uccgacuaca gcuuagggau aaugcaaagg agcuggguaa cgguuguuuc 1440

gaguucuauc auaaauguga uaaugaaugu auggaaagug uaagaaacgg aacguaugac 1500

uacccgcagu auucagaaga agcaagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauauuguca auuuauucua caguggcgag cucccuagca 1620

cuggcaauca ugguagcugg ucuauccuua uggaugugcu ccaaugggguc guuacaaugc 1680

agaauuugca uuuaa 1695

<210> 45870
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACU65077/m2

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauuuau caaugugccg gaauggucuu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuggggu gagcucagca uguccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aauggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaacgagag 1020

acgcgaggau uauuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu augguacca ccauagcaac gagcagggga gugguacgc ugcagacaaa 1140

gaauccacuc aaaaggcaau agauggaguc accaauaagg ucaacucgau uauugacaaa 1200

augaacacuc aguuugaggc cguuggaagg gaauuuaaca acuuagaaag gagaauagag 1260

aauuuaaaca agaagaugga agacggguuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cuaguucuca uggaaaacga gagaacucua gacuuucaug acucaaaugu caagaaccuu 1380

uacgacaagg uccgacuaca gcuuagggau aaugcaaagg agcuggguaa cgguuguuuc 1440

gaguucuauc auaaauguga uaaugaaugu auggaaagug uaagaaacgg aacguaugac 1500

uacccgcagu auucagaaga agcaagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauauuguca auuuauucua caguggcgag cucccuagca 1620

cuggcaauca ugguagcugg ucuauccuua uggaugugcu ccaaugggguc guuacaaugc 1680

agaauuugca uuuaa 1695

<210> 45871
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ABP51976

<400> 45871
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuggggu gagcucagca uguccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucuaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

agaagaagaa aaaagagagg auuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

auuauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa caacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucuaguucu cauggaaaac gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucauaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaauuuac caaauauugu caauuuauuc uacaguggcg 1620

agcucccuag cacuggcaau caugguagcu ggucuauccu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45872
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ABP51976/m1

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauuuau caaugugccg gaauggucuu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuggggu gagcucagca uguccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucuaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

agaagaagaa aaaagagagg auuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

auuauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa caacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucuaguucu cauggaaaac gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcugggu 1440

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ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguagcguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

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caugaagccu cauuaggggu gagcucagca ugcccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuac caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaag ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

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auaaacucua gcaugccauu ccacaauaua cacccucuca ccauuggggа augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaacgagag 1020

acgcgaggau uauuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu augguacca ccauagcaau gagcagggga gugguacgc ugcagacaaa 1140

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uacccgcagu auucagaaga agcgagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguagcguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

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caugaagccu cauuaggggu gagcucagca ugcccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa ggggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaag ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccauuggggа augccccaaa 960

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augaacacuc aguuugaggc cguuggaagg gaauuuaaca acuuagaaag gagaauagag 1260

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uacccgcagu auucagaaga agcgagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

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ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

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agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaag ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

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auaaacucua gcaugccauu ccacaauaua cacccucuca ccauugggga augccccaaa 960

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gaugguuggu auggguacca ccauagcaau gagcagggga gugggguacgc ugcagacaaa 1140

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gaguucuauc auaaauguga uaaugaaugu auggaaagug uaagaaaugg aacguaugac 1500

uacccgcagu auucagaaga agcgagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

cuggcaauca ugguagcugg ucuauccuua uggaugugcu ccaauggauc guuacaaugc 1680

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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

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ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

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aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

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ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

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auaaacucua gcaugccauu ccacaauaua cacccucuca ccauuggggа augccccaaa 960

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uacccgcagu auucagaaga agcgagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

cuggcaauca ugguagcugg ucuauccuua uggaugugcu ccaauggauc guuacaaugc 1680

agaauuugca uuuaa 1695

<210> 45877
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<212> RNA
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ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

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aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc uaaugaugcg 600

gcagagcaga cagagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

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gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

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<210> 45878
<211> 1695
<212> RNA
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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

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ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

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gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

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<210> 45879
<211> 1695
<212> RNA
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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

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ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

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<210> 45880
<211> 1695
<212> RNA
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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguagcguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuaggggu gagcucagca ugcccauacc agggaaagcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc uaaugaugcg 600

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cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

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ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

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gaugguuggu auggguacca ccauagcaau gagcagggga gugggguacgc ugcagacaaa 1140

gaauccacuc aaaaggcaau agauggaguc accaauaagg ucaacucgau cauugacaaa 1200

augaacacuc aguuugaggc cguuggaagg gaauuuaaca acuuagaaag gagaauagag 1260

aauuuaaaca agaagaugga agacggguuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cugguucuca uggaaaauga gagaacucua gacuuucaug acucaaaugu caagaaccuu 1380

uacgacaagg uccgacuaca gcuuagggau aaugcaaagg agcuggguaa cgguuguuuc 1440

gaguucuauc auaaauguga uaaugaaugu auggaaagug uaagaaaugg aacguaugac 1500

uacccgcagu auucagaaga agcgagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

cuggcaauca ugguagcugg ucuauccuua uggaugugcu ccaauggauc guuacaaugc 1680

agaauuugca uuuaa 1695

<210> 45881
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45881
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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguagcguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguguu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuaggggu gagcucagca ugcccauacc aggaaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaag ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aauggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccauugggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaacgagag 1020

acgcgaggau uauuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu auggguacca ccauagcaau gagcagggga gugggguacgc ugcagacaaa 1140

gaauccacuc aaaaggcaau agauggaguc accaauaagg ucaacucgau cauugacaaa 1200

augaacacuc aguuugaggc cguuggaagg gaauuuaaca acuuagaaag gagaauagag 1260

aauuuaaaca agaagaugga agacggguuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cugguucuca uggaaaauga gagaacucua gacuuucaug acucaaaugu caagaaccuu 1380

uacgacaagg uccgacuaca gcuuagggau aaugcaaagg agcuggguaa cgguuguuuc 1440

gaguucuauc auaaauguga uaaugaaugu auggaaagug uaagaaaugg aacguaugac 1500

uacccgcagu auucagaaga agcgagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

cuggcaauca ugguagcugg ucuauccuua uggaugugcu ccaauggauc guuacaaugc 1680

agaauuugca uuuaa 1695

<210> 45882
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
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acuguuacac augcccaaga cauacuggaa aagaaacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguagcguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuaggggu gagcucagca ugcccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caacaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaag ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccauuggggа augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaacgagag 1020

acgcgaggau uauuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu auggguacca ccauagcaau gagcagggga gugguacgc ugcagacaaa 1140

gaauccacuc aaaaggcaau agauggaguc accaauaagg ucaacucgau cauugacaaa 1200

augaacacuc aguuugaggc cguuggaagg gaauuuaaca acuuagaaag gagaauagag 1260

aauuuaaaca agaagaugga agacggguuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cugguucuca uggaaaauga gagaacucua gacuuucaug acucaaaugu caagaaccuu 1380

uacgacaagg uccgacuaca gcuuagggau aaugcaaagg agcuggguaa cgguuguuuc 1440

gaguucuauc auaaauguga uaaugaaugu auggaaagug uaagaaaugg aacguaugac 1500

uacccgcagu auucagaaga agcgagacua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaauuuacca aauacuguca auuuauucua caguggcgag uucccuagca 1620

cuggcaauca ugguagcugg ucuauccuua uggaugugcu ccaauggauc guuacaaugc 1680

agaauuugca uuuaa 1695

<210> 45883
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45883
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acagugacac acgcccagga uauccuggag aagaaacaca auggaaagcu gugcgaucug 180

gauggaguga agccucugau ccugagagau ugcagcgugg ccggauggcu gcugggaaau 240

ccuaugugcg augaguucau caaugugccu gaguggagcu acaucgugga gaaggccaau 300

ccugugaaug aucugugcua cccuggagau uucaaugauu acgaggagcu gaagcaccug 360

cugagcagaa ucaaucacuu cgagaagauc cagaucaucc cuaagagcag cuggagcagc 420

cacgaggcca gccugggagu gagcagcgcc ugcccuuacc agggcaagag cagcuucuuc 480

agaaaugugg uguggcugau caagaagaau agcacauacc cuacaaucaa gagaagcuac 540

aauaauacaa aucaggagga ucugcuggug cugugggaa uccaccaccc uaaugaugcc 600

gccgagcaga caaagcugua ccagaauccu acaacauaca ucagcguggg aacaagcaca 660

cugaaucaga gacuggugcc uagaaucgcc acaagaagca aggugaaugg acagagcgga 720

agaauggagu ucuucuggac aauccugaag ccuaaugaug ccaucaauuu cgagagcaau 780

ggaaauuuca ucgcuccuga guacgccuac aagaucguga agaagggaga uagcacaauc 840

augaagagcg agcuggagua cggaaauugc aauacaaagu gccagacacc uaugggagcc 900

aucaauagca gcaugccuuu ccacaauauc cacccucuga caaucggaga gugcccuaag 960

uacgugaaga gcaauagacu ggugcuggcc acaggacuga gaaauagccc ucagagagag 1020

acgagaggac uguucggagc caucgccgga uucaucgagg gaggauggca gggaauggug 1080

gauggauggu acggauacca ccacagcaau gagcagggaa gcggauacgc cgccgauaag 1140

gagagcacac agaaggccau cgauggagug acaaauaagg ugaauagcau caucgauaag 1200

augaauacac aguucgaggc cgugggaaga gaguucaaua aucuggagag aagaaucgag 1260

aaucugaaua agaagaugga ggauggauuc cuggaugugu ggacauacaa ugccgagcug 1320

cuggugcuga uggagaauga gagaacacug gauuuccacg auagcaaugu gaagaaucug 1380

uacgauaagg ugagacugca gcugagagau aaugccaagg agcugggaaa uggaugcuuc 1440

gaguucuacc acaagugcga uaaugagugc auggagagcg ugagaaaugg aacauacgau 1500

uacccucagu acagcgagga ggccagacug aagagagagg agaucagcgg agugaagcug 1560

gagagcaucg gaaucuacca gauccugagc aucuacagca caguggccag cagccuggcc 1620

cuggccauca ugguggccgg acugagccug uggaugugca gcaauggaag ccugcagugc 1680

agaaucugca ucuga 1695

<210> 45884

<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI439507

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aucugccucg gacaucaugc cgugucaaac ggaaccaaag uaaacacauu aacugaaaga 120

ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 45885
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI482777

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uguauagguu aucaugcaaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugcugg ggcaaacagc 480

uucuacagaa auuuaguaug gcuaguaaaa aagggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag ucucuaccaa aaugcagaug ccuauguguu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gaccuaaggu gagagaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gugacaagau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gccuucgcau ugaaaagaaa uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag guuuaaggaa uaucccgucu 1020

auccaaucua gaggccuguu uggugccauu gcuggcuuua ucgaaggggg uuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggaucacua acaagguaaa cucuguuauu 1200

gaaaagauga acacacaauu cacggcagua gguaaagaau ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa aguagaugau gguuuucuag auauuuggac uuacaaugcc 1320

gaacuauugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuguaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac augugcaugg aaagcgucaa aaauggaacu 1500

uaugauuacc cuaaauacuc agaggaagca aaacuaaaca gagaagaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcuaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45886
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI745532

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45887
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI278594

<400> 45887

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug aaucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45888
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaccu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45889
<211> 1701
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__GQ280797

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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag uaucuaucag aaugcagaua cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug ugaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45890
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45891
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaccu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaua cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca aacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uaucccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

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<210> 45892
<211> 1701
<212> RNA
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<220>
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa auuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga aauuucaucg auuaugagga gcuaagagaa 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccgaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaac gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggaaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucugg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45893
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI240319

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

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ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45894
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI183134

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

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aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45895
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI368693

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guaacaguaa cacacucugu uaacauucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcaucauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

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augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45896
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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uguauagguu aucaugcgaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugcugg gacaaacagc 480

uucuacagaa auuuaauaug gcuggucaaa aaaggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag ucucuaccaa aaugcagaug ccuauguuuu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gacccaaggu gagggaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gccuucgcau ugaaaagaaa uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggggccauu gcuggcuuua uugaaggggg cuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggaucacua acaagguaaa uucuguuauu 1200

gaaaagauga acacacaauu cacagcagua gguaaagagu ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuucuag auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg aaagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45897
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI482788

<400> 45897
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uguauagguu aucaugcgaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugcugg gacaaacagc 480

uucuacagaa auuuaauaug gcuggucaaa aaaggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag uaucuaccaa aaugcagaug ccuauguuuu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gacccaaggu gagggaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gccuucgcau ugaaaagaaa uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggggccauu gcuggcuuua uugaaggggg cuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggaucacua acaagguaaa uucuguuauu 1200

gaaaagauga acacacaauu cacagcagua gguaaagagu ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuucuag auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg aaagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45898
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI178946/m1

<400> 45898

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guaacaguaa cacacucugu uaaccuucua gaaaacaagc augacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcucuuggga 240

aacccagagu gugaaucacu auucacagca agcucauggu ccuacauagu ggaaacgccu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

cauuugagcu cugugucauc auuugaaagg uuugagauau uccccaaggc uaauucaugg 420

cccaaccaug auacgaauaa ggggguaacg gcagcauguc cuuaugcugg agcaaacagc 480

uuuuacagaa auuuaauaug gcuaguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acaauaagaa gaaggaaguc cuugugauau ggggcaucca ccauccaccu 600

accaguacug accaacaaac ucucuaccag aaugcagaug ccuauguuuu ugugggauca 660

ucaaaauaca gcaaaagauu caagccagaa auagcagcaa gacccaaggu gaggaaucaa 720

gcaggaagaa ugaacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg cucuggaucu 840

gguauuaucg uuucagaugc accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugagg auggcuacag gacuaagaaa uaucccgucu 1020

auucaaucaa gaggccuauu uggggccauu gcuggcuucc uugaaggggg guggacagga 1080

augauagaug gaugguacgg uuaccaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccaaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa uucuauuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccaauu ggaaaaaaga 1260

auagagaguu uaaacaauaa ggucgaugau gggguuccuag auauuuggac uuacaaugcc 1320

gaaaugcugg uucuauugga aaaugaaaga acucuggauu aucacgauuc aaaugugaag 1380

aaccuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aagcuaaaua gagaggagau agaugggggua 1560

aagcuggaau cagcaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugu uagucucucu gggggcaguc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguaucua a 1701

<210> 45899
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI482791/m2

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uguauaggcu aucaugcaaa uaauucaacu gacacuguug acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc augacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcucuuggga 240

aacccagagu gugaaucacu auucacagca agcucauggu ccuacauagu ggaaacgccu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

cauuugagcu cugugucauc auuugaaagg uuugagauau uccccaaggc uaauucaugg 420

cccaaccaug agacgaauaa ggggguaacg gcagcauguc cuuaugcugg agcaaacagc 480

uuuuacagaa auuuaauaug gcuaguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acaauaagaa gaaggaaguc cuugugauau ggggcaucca ccauccaccu 600

accaguacug accaacaaac ucucuaccag aaugcagaug ccuauguuuu ugugggauca 660

ucaaaauaca gcaaaagauu caagccagaa auagcagcaa gacccaaggu gaggaaucaa 720

gcaggaagaa ugaacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg cucuggaucu 840

gguauuaucg uuucagaugc accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugagg auggcuacag gacuaagaaa uaucccgucu 1020

auucaaucaa gaggccuauu uggggccauu gcuggcuucc uugaaggggg guggacagga 1080

augauagaug gaugguacgg uuaccaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccaaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa uucuauuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccaauu ggaaaaaaga 1260

auagagaguu uaaacaauaa ggucgaugau gggguuccuag auauuuggac uuacaaugcc 1320

gaaaugcugg uucuauugga aaaugaaaga acucuggauu aucacgauuc aaaugugaag 1380

aaccuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aagcuaaaua gagaggagau agaugggggua 1560

aagcuggaau cagcaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugu uagucucucu gggggcaguc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguaucua a 1701

<210> 45900
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI291799

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uguauagguu aucaugcgaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugcugg gacaaacagc 480

uucuacagaa auuuaauaug gcugguaaaa aagggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag ucucuaccaa aaugcagaug ccuauguuuu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gacccaaggu gagggaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gccuucgcau ugaaaagaac uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggggccauu gcuggcuuua ucgaaggggg cuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggaucacua acaagguaaa uucuguuauu 1200

gaaaagauga acacacaauu cacagcagua gguaaagagu ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuucuag auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg aaagcgucaa aaauggaacu 1500

uaugauuacc cuaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45901
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI482799

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uguauagguu aucaugcgaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaacgaacag aggugugacg gcagcauguc cucaugcugg gacaaacagc 480

uucuacagaa auuuaauaug gcugguaaaa aagggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag ucucuaccaa aaugcagaug ccuauguuuu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gacccaaggu gagggaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gccuucgcau ugaaaagaac uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggggccauu gcuggcuuua ucgaaggggg cuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

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gaaaagauga acacacaauu cacagcagua gguaaagagu ucagccacuu ggaaagaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg aaagcgucaa aaauggaacu 1500

uaugauuacc cuaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45902

<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI291807

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uguauaggcu aucaugcaaa uaauucaacu gacacuguug acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc augacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcucuuggga 240

aacccagagu gugaaucacu auucgcagca agcucauggu ccuacauagu ggaaacgccu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

cauuugagcu cugugucauc auuugaaagg uuugagauau uccccaaggc aaauucaugg 420

cccaaucaug auacgaauaa gggggugacg gcagcauguc cuuaugcugg agcaaacagc 480

uuuuacagaa auuuaauaug gcuaguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acaauaagaa gaaggaaguc cucgugauau ggggcaucca ccauccaccu 600

accaguacug accaacaaac ucucuaccag aaugcagaug ccuauguuuu ugugggauca 660

ucaaaauaca gcaaaagauu caaaccagaa auagcagcaa gacccaaggu gagggaucaa 720

gcaggaagga uggauuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg cucuggaucu 840

gguauuaucg uuucagaugc accaguccac gacuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau cggggaaugu 960

ccaaaauaug ucaaaagcac aaaauugagg auggcuacag gauuaagaaa uaucccgucu 1020

auucaaucaa gaggccuauu uggggccauu gcuggauuca uugaaggggg guggacagga 1080

augauagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga acacacaauu cacagcagug gguaaagaau ucagccaauu ggaaaaaaga 1260

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gaacugcugg uucuauugga aaaugaaaga acucuggauu aucacgauuc aaaugugaag 1380

aaccuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aagcuaaaua gagaggagau agaugggggua 1560

aagcuggaau cagcaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugu uagucucucu gggggcaguc agcuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguaucua a 1701

<210> 45903
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI638970

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uguauagguu aucaugcaaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuaugcaaa 180

cuaagagggg uagcuccauu gcacuugggu aaauguaaca uugcuggaug gauucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaaa augggacgug uuacccagga gauuucauaa auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacaa aggugugacg gcagcauguc cucauucugg gacaaacagc 480

uucuacagaa auuuaguaug gcuaguacaa aagggaaauu cauacccaaa aaucaacaaa 540

uccuacauua acaauaaaga gaaugaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacagag ucucuacaaa aaugcagaug ccuauguguu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gaccuaaagu gagagaccaa 720

gcagggagaa ugaauuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gccuucacau ugaaaagaaa uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua caacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag guuuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggugccauu gcuggcuuua uugaaggggg uuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

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gaacuguugg uucuauugga aaaugaacga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau ugggaauggc 1440

ugcuuugaau uuuaccacaa augugaugac augugcaugg aaagcgucaa aaauggaacu 1500

uaugauuacc cuaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggggua 1560

aaguuggaau caacaaagau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45904
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<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ABI19015

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uguauaggcu aucaugcaaa uaauucaacu gacacuguug acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc augacgggaa acuauguaaa 180

cuaagaggga uagccccauu gcauuugggu aaauguaaca uugcuggaug gaucuuggga 240

aacccagagu gugaaucacu auucacaaca agcucauggu cauacauagu ggaaacgccu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

cauuugagcu cugugucauc auuugaaagg uuugagauau uccccaaggc aaauucaugg 420

cccuaucaug auacgaauaa aggggugacg gcagcauguc cuuaugcugg agcaaacagc 480

uuuuacagaa auuuaauaug gcuaguaaaa aaaggaaauu cauacccaaa gcucaguaaa 540

uccuacauua acaauaagaa gaaagaaguc cucgugauau ggggcaucca ccauccaccu 600

accaguacug accaacaaac ucucuaccag aaugcagaug cuuauguuuu ugugggauca 660

ucaaaauaca gcaagagauu caagccagaa auagcagcaa gacccaaggu gagggaucaa 720

gcaggaagga uggacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucacaa ugaaaagagg cucuggaucu 840

gguauuaucg uuucagacgc accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugagg auggcuacag gauuaagaaa uaucccgucu 1020

auucaaucaa gaggccuauu uggggccauu gcuggcuuca uugaaggggg guggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccaaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa uucuauuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucagccaauu ggaaaaaaga 1260

auagagaguu uaaacaauaa gguugacgau gguuuucuag auauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acucuggauu aucacgauuc aaaugugaag 1380

aaccuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg agagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aagcuaaaua gacaggagau agaugggggua 1560

aagcuggaau cagcaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugu uagucucucu aggggcaguc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguaucua g 1701

<210> 45905
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI687790

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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45906
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI841265

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uguauagguu aucaugcaaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaggagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug auucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag uaucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa uuaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucgaauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45907
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI291846

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uguauaggcu aucaugcaaa uaauucaacu gacacuguug acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaacaagc augacggaaa acuauguaac 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcucuuggga 240

aacccagagu gugaaucacu auucacagca agcucauggu ccuacauagu ggaaacgccu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

cauuugagcu cugugucauc auuugaaagg uuugagauau uccccaaggu uaauucaugg 420

cccaaccaug auacaaauaa gggggugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uuuuacagaa auuuaauaug gcuaguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

ucuuacauua acaacaagaa gaaggaaguc cucgugauau ggggcauuca ccauccaccc 600

accagcacug aucaacaaac ucucuaccag aaugcagaug ccuauguuuu ugugggauca 660

ucaaaauaca gcaaaagauu cgagccagaa auagcagcaa gacccaaggu gaggaaucaa 720

gcaggaagaa ugaacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugagaagagg cucuggaucu 840

gguauuauug uuucagaugc accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugagg auggcuacag gauuaagaaa uaucccgucu 1020

auucaaucaa gaggccuauu uggggccauu gcuggcuucc uugaaggggg guggacagga 1080

augauagaug gaugguacgg uuaccaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccaaaaga gcacacagaa cgccauugac gggaucacua acaaaguaaa uucuauuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucagccaauu ggaaaaaaga 1260

auagagaguu uaaacaauaa ggucgaugau gggguuccuag acauuuggac uuacaaugcc 1320

gaaaugcugg uucuauugga aaaugaaaga acucuggauu aucacgauuc aaaugugaag 1380

aaccuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucag aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aagcuaaaua gagaggagau agaugggggua 1560

aagcuggaau cagcaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugu uagucucucu gggggcaguc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagga uauguaucua a 1701

<210> 45908
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI558121

<400> 45908
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uguauagguu aucaugcaaa caauucaacu gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uucgagauau ucccccagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugcugg gacgaacagc 480

uucuacagaa auuuaguaug gcuaguaaaa aaggggaauu cauacucaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag ucucuaccaa aaugcagaug ccuauguguu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gaccuaaggu gagagaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcuacuggaa aucuaguggc accgagauau gccuucgcau ugaaaagaaa uucuggaucc 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag guuuaaggaa uaucccgucu 1020

auccaaucua gaggccuguu uggugccauu gcuggcuuua ucgaaggggg uuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggaucacua acaagguaaa cucuguuauu 1200

gaaaagauga acacacaauu cacggcagua gguaaagagu ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa aguagaugau gguuuucuag auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaagaaau ugguaauggc 1440

uguuuugaau uuuaccacaa augugaugac augugcaugg aaagcgucaa aaauggaacu 1500

uaugauuacc cuaaauacuc agaggaagca aaacuaaaca gagaggaaau agauggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauaa 1695

<210> 45909
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI564139

<400> 45909
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45910
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI786706

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugaguu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauuaaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccuag acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45911
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI395313

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uguauagguu aucaugcaaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuucuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugcugg gacaaaaagc 480

uucuacaaaa auuuaauaug gauagcaaaa aagggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugcug accaacaaag ucucuaccaa aaugcagaug ccuauguguu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gacccaaggu gagagaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggc accgagauau gccuucgcau ugaaaagaaa uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggugccauu gcuggcuuua ucgaaggggg cuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggaucacua acaagguaaa cucuguuauu 1200

gaaaagauga acacacaauu cacggcagua gguaaagagu ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuucuag auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac augugcaugg aaagugucaa aaauggaacu 1500

uaugauuacc cuaaauacuc agaggaagca aaacuaaaca gagagguaau agaugggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu augcaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45912
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI291696

<400> 45912
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uguauagguu aucaugcaaa uaauucaacu gacacuguug auacgguacu agaaaagaau 120

guaacaguua cacacucugu uaaucuucua gaaaacagac auaacggaaa gcuauguaaa 180

cuaagggggg uacccccauu gcauuugggu aaauguaaca uugcuggaug gcuccuggga 240

aacccagaau gugaauuacu auucacagca agcucauggu cuuacauugu ggaaacaucu 300

aacucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caguugagcu cagugucauc auuugaaagg uuugagauau uccccaaggc aaguucaugg 420

cccgaucaug aaacgaacag aggugugacg gcagcauguc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcugguaaaa aaaggaaauu cauacccaaa acucagcaaa 540

uccuauguua acaauaagga gaaggaaguc cucgugcuau ggggcauuca ccauccaccu 600

accaguacug accaacaaag ucucuaccag aaugcagaug ccuauguuuu ugugggguca 660

ucaaaguaca acaagaaauu caagccagag auggcggcaa gacccaaggu gagaggucaa 720

gcagggagaa ugaacuauua cuggacacua guugcgccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu gccaagauau gccuucgcaa ugaaaagagg uucuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaaguac aaaauugaga auggcuacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcuggcuuua uugagggggg auggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcu 1140

gaccgaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa cucuguuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auguuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accaugacuc aaaugugaag 1380

aaccuauaug agaaaguaag aagccagcua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaauca aaacuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu cagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 45913
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACU80014

<400> 45913
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uguauagguu aucaugcaaa uaauucaacu gacacuguug auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucuu gaagacagac auaacgggaa acuauguaaa 180

cugggggga uagccccauu gcacuugggu aaauguaaca uugccggaug gcuuuuggga 240

aacccagaau gugaauuacu acucacagua agcucauggu cuuacauugu ggaaacaucg 300

aacucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcugagagag 360

caguugagcu cagugucauc auuugaaaga uucgagauau uccccaagac aaguucgugg 420

cccaaucaug aaacaaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcugguggaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauguua acaauaaagg gaaggaaguc cuugugcuau ggggcauuca ucauccaccu 600

accaguacug aucaacaaag ucucuaccaa aaugcagaug ccuauguuuu uguaggguca 660

ucaaaauaua acagaaaguu caagccagaa auagcagcaa gacccaaggu gagaggucaa 720

gcagggagga ugaacuauua cuggacacua auagaaccug gagacacaau aacauuugaa 780

gcaacuggaa aucuaguggu accaagauau gcuuucgcaa ugaauagagg uucuggaucu 840

gguauuauaa uuucggaugc accaguucau gauuguaaca cgaaguguca aacacccaag 900

ggugccauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcugguuuua uugagggggg auggacagga 1080

augauagaug gaugguaugg uuaucaccau cagaaugaac agggaucagg auaugcagcg 1140

gaccaaagga gcacacaaaa ugccauugac gggaucacua acaaaguaaa uucuguuauu 1200

gaaaagauga acacgcaauu cacggcagug gguaaagaau ucaaccacuu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auauuuggac auacaaugca 1320

gaacuguugg uucuauugga aaaugaaaga acucuggauu uccacgacuc gaauguaaag 1380

aaccuguaug agaaaguaag aagccagcua aggaacaaug ccaaagaaau ugggaauggc 1440

ugcuuugaau ucuaucacaa augugaugau acaugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaguacuc agaagaauca aagcuaaaca gagaggagau agauggagua 1560

aaguuggagu caacaagaau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uggucucccu gggggcaauc aguuuuugga ugugcucuaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 45914
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI177400

<400> 45914
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45915
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACT36512

<400> 45915
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggucg 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45916
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

hemagglutinin__InfluenzaA__AJE30344

<400> 45916

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auugguuacc augcaaacaa cucaacaaag cagguugaca cgauaaugga gaaaaacguc 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucuu 180

aauggaguga agccccugau ucuaaaggau uguagcguag cuggguggcu ccuuggaaau 240

ccaaugugcg acgaguucau caggguaccg gaauggucuu acaucgugga gagggcuaac 300

ccagccaacg accucuguua cccagggacc cucaaugacu augaggaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaaau cugaucaucc ccaggaguuc uuggcccaau 420

caugaaacau cauuaggggu gagcgcagca uguccauacc agggagcauc cucauuuuuc 480

agaaaugugg uauggcucau caaaaagaac gaugcauacc cgacaauaaa gauaagcuac 540

aauaauacca aucgggaaga ucuuuugaua cugugggggа uucaucauuc caacaaugca 600

gcagagcaga caaaucucua uaaaaaccca gacacuuaug uuuccguugg gacaucaaca 660

uuaaaccaga gauuggugcc aaaaauagcu acuagauccc aaguaaacgg gcagagugga 720

agaauggauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu ugagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggggа cucaacaauu 840

augaaaagug aaauggagua uggccacugc aacaccaaau gucaaacucc aauaggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uacgugaagu caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag acgguuggua uggguaucau cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aaucaaccca aaaggcaaua gauggaguua ccaauaaggu caacucaauc 1200

auugacaaaa ugaacacuca auuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuu uaguucucau ggaaaaugag agaacucuag auuuccauga cucaaauguc 1380

aagaaccuuu acgacaaagu ccgacuacag cuuagggaua augcaaagga gcuggguaau 1440

gguuguuucg aguucuauca caaaugugau aacgaaugua uggagagcgu aagaaauggg 1500

acguaugacu acccuaagua uucagaagaa gcaauauuaa aaagagaaga aauaagcgga 1560

gugaaauuag aaucaauagg aacuuaccag auacugucaa uuuauucaac aguggcgagu 1620

ucccuagcac uggcaaucau aguggcuggu cuaucuuuau ggaugugcuc uaaugggucg 1680

uuacaaugca gaauuugcau cuaa 1704

<210> 45917
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI178948

<400> 45917
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uguauagguu aucaugcgaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugcugg gacaaacagc 480

uucuacagaa auuuaauaug gcuggucaaa aaaggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag ucucuaccaa aaugcagaug ccuauguuuu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gacccaaggu gagggaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gccuucgcau ugaaaagaaa uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggggccauu gcuggcuuua uugaaggggg cuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

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gaaaagauga acacacaauu cacagcagua gguaaagagu ucagccacuu ggaaagaaga 1260

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gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg aaagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45918
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI178949

<400> 45918
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uguauagguu aucaugcgaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugcugg gacaaacagc 480

uucuacagaa auuuaauaug gcuggucaaa aaaggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaggaaguu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag ucucuaccaa aaugcagaug ccuauguuuu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gacccaaggu gagggaccaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gccuucgcau ugaaaagaaa uucuggaucu 840

gguauuauca uuucagauac aucaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag gauuaaggaa uaucccgucu 1020

auucaaucua gaggccuguu uggggccauu gcuggcuuua uugaaggggg cuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

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gaaaagauga acacacaauu cacagcagua gguaaagagu ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuucuag auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg aaagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggggua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45919
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI590132

<400> 45919
augaaggcaa uacuaauagu ccugcuauau acauuuacaa ccgcaaaugc cgacaaaaua 60

uguauagguu aucaugcgaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaagc auaauggaaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggcug gcuccuggga 240

aauccagagu gugaaucacu cgccacagca agcucauggu ccuacauugu ugaaacuucu 300

aguucgaaca augggacgug uuacccagga gauuucauca auuaugaaga gcuaagagaa 360

caguuaagcu cagugucauc auuugaaaaa uuugagauau uccccaagac gaguucaugg 420

cccaaucaug aaacaaacaa agguguaacg gcagcauguc cacaugcugg gacaaacagc 480

uucuacaaaa auuuaauaug gcuggucaaa aaagagaauu cauacccaaa gaucaacaua 540

uccuacacua acaauagagg gaaggaaguu cucguguuau gggccauuca ccauccaccu 600

accagcaccg aucaacaaag ucucuaccaa aaugcaaauu ccuauguuuu ugugggguca 660

ucaagauaca gcaggaaguu cgagccagaa auagcaacaa gacccaaggu gaggggccaa 720

gcagggagaa ugaacuauua cuggacauua guagagccug gagacaagau aacauucgaa 780

gcaacuggaa auuugguggu accgagauau gccuucgcau ugaaaagaaa uucuggaucu 840

gguauuauca uuucagagac accaguccac gauugugaua cgacuuguca gacacccaau 900

ggugcuauua acaccagccu cccauuucag aauauacauc cagucacaau uggggaaugc 960

ccaaaauaug uaaaaaguac uaaauugaga auggccacag gauugaggaa caucccgucc 1020

auucaaucua gaggccuguu uggggccauu gccggcuuua uugaaggggg cuggacagga 1080

augauagaug gguggguacgg uuaucaccau caaaaugagc aaggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggaucacua auaagguaaa uucuguuauu 1200

gaaaagauga auacacaauu cacagcagua gguaaagagu ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa gguugaugau gggguuuauag auauuuggac uuacaaugcc 1320

gaacuguugg uucuguugga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

accuuauaug aaaaaguaag aagccaacua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg agagcgucaa aaauggaacu 1500

uaugauuacc caaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggaua 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagag uauguauuua a 1701

<210> 45920

<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ABU80400

<400> 45920
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uguauagguu accaugcaaa uaauucaacu gacacuguug auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacagac auaacggaaa acuauguaaa 180

cuaagggggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcuccuggga 240

aacccagaau gugaauuacu auucacagca agcucauggu cuuacauugu ggaaacaucu 300

aacucagaca augggacaug uuacccagga gauuucauca auuacgaaga gcuaagagag 360

caauugagcu cagugucauc auuugaaaga uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug aaacgaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcugguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauguua acaauaagga gaaggaaguc cucgugcuau ggggcauuca ccauccaccu 600

accaguacug accaacaaag ucucuaccag aaugcagaug cuuauguuuu ugugggguca 660

ucaaaguaca acaagaaauu caagccagaa auagcaacaa gacccaaggu gagaggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg uucuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaguaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcuggcuuua uugagggggg auggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcu 1140

gaccgaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa cucuguuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaacagaaa gguugaugau gguuuucugg auauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuagauu accaugacuc aaaugugaag 1380

aaccuauaug agaaagugag aagccagcua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaauca aaacuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauc uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 45921
<211> 1698
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ABO21709

<400> 45921
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uguauaggcu accaugcgaa caauucaacc gacacuguug acacaguacu cgagaagaau 120

gugacaguga cacacucugu uaaccugcuc gaagacagcc acaacggaaa acuauguaga 180

uuaaaaggaa uagccccacu acaauuggggg aaauguaaca ucgccggaug gcucuuggga 240

aacccagaau gcgacccacu gcuuccagug agaucauggu ccuacauugu agaaacacca 300

aacucugaga auggaauaug uuauccagga gauuucaucg acuaugagga gcugagggag 360

caauugagcu cagugucauc auucgaaaga uucgaaauau uucccaaaga aagcucaugg 420

cccaaccaca acacaaacgg aguaacggca gcaugcuccc augaggggaa aagcaguuuu 480

uacagaaauu ugcuauggcu gacggagaag gagggcucau acccaaagcu gaaaaauucu 540

uaugugaaca aaaaagggaa agaaguccuu guacuguggg guauucauca cccgccuaac 600

aguaaggaac aacagaaucu cuaucagaau gaaaaugcuu augucucugu agugacuuca 660

aauuauaaca ggagauuuac cccggaaaua gcagaaagac ccaaaguaag agaucaagcu 720

gggaggauga acuauuacug gaccuugcua aaacccggag acacaauaau auuugaggca 780

aauggaaauc uaauagcacc aauguaugcu uucgcacuga guagaggcuu uggguccggc 840

aucaucaccu caaacgcauc aaugcaugag uguaacacga agugucaaac accccuggga 900

gcuauaaaca gcagucuccc uuaccagaau auacacccag ucacaauagg agagugccca 960

aaauacguca ggagugccaa auugaggaug guuacaggac uaaggaacaa uccguccauu 1020

caauccagag gucuauuugg agccauugcc gguuuuauug aagggggaug gacuggaaug 1080

auagauggau gguaugguua ucaucaucag aaugaacagg gaucaggcua ugcagcggau 1140

caaaaaagca cacaaaaugc cauuaacggg auuacaaaca aggugaacac uguuaucgag 1200

aaaaugaaca uucaauucac agcugugggu aaagaauuca acaaauuaga aaaaaggaug 1260

gaaaauuuaa auaaaaaagu ugaugaugga uuucuggaca uuuggacaua uaaugcagaa 1320

uuguuaguuc uacuggaaaa ugaaaggacu cuggauuucc augacucaaa ugugaagaau 1380

cuguaugaga aaguaaaaag ccaauuaaag aauaaugcca aagaaaucgg aaauggaugu 1440

uuugaguucu accacaagug ugacaaugaa ugcauggaaa guguaagaaa ugggacuuau 1500

gauuauccca aauauucaga agagucaaag uugaacaggg aaaagguaga uggagugaaa 1560

uuggaaucaa uggggaucua ucagauucug gcgaucuacu caacugucgc caguucacug 1620

gugcuuuugg ucucccuggg ggcaaucagu uucuggaugu guucuaaugg aucuuugcag 1680

ugcagaauau gcaucuga 1698

<210> 45922
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__CAZ65588

<400> 45922
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagaaccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu ugggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45923
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI697744

<400> 45923

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45924
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI768525

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagguau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45925
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI726930

<400> 45925
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45926
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI813817

<400> 45926
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaucuucug gaagacaagc auaacggaaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aauucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugaaauau uccccaaggc aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa acuugauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucaaccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaua gcaagaaguu caagccggaa auagcaacaa gacccaaagu gagggaucaa 720

gaagcgagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau ugggaaaugu 960

ccaaaguaug uaaaaagcac aaaauuaaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauc uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu aucacgauuc aaaugugaag 1380

aacuuguaug aaaaaguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau cuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45927
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI466626

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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc agggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaagaga 1260

auagagaauu uaaauaaaaa aguugaugau ggauuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaaaaaau agauggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

gugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45928
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI541966

<400> 45928
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaucu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaagaga 1260

auagagaauu uaaauaaaaa aguugaugau ggauuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

gugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45929
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI652003

<400> 45929
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uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca aguucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug aaucgaacaa agguguaacg gcagcauguc cucacgcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagccaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcugu ggggcauuca ccauccaccu 600

acuacugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggaca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucacaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccgag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaguaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu cggggccauu gccggcuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacaaaa ugccauugac aagauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagug gguaaagagu ucaaccaccu ggaaaagaga 1260

auagagaauu uaaauaaaaa aguugaugau ggauuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuguaug aaaagguaag aaaccaguua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc cgaaauacuc agaggaagca aaauuaaaca gagaaaaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

gugguacugg uagucucccu gggggcaauc agcuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45930
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI291877

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uguauaggcu aucaugcaaa uaauucaacu gacacuguug acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaacauucua gaaaacaagc augacgggaa acuauguaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcucuuggga 240

aacccagagu gugaaucacu auucgcagca agcucauggu cauacauagu ggaaacgccu 300

aauucagaca augggacaug uuacccagga gauuucauca auuaugagga gcuaagagag 360

cauuugagcu cugugucauc auuugaaagg uuugagauau uccccaaggc aaauucaugg 420

ccuaaucaug auacgaauaa gggggugacg gcagcauguc cuuaugcugg agcaaacagc 480

uuuuacagaa auuuaauaug gcuaguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acaauaagaa gaaggaaguc cucgugauau ggggcaucca ccauccaccu 600

accaguauug accaacaaac ucucuaccag aaugcagaug ccuauguuuu ugugggauca 660

ucaaaauaca gcaaaagauu caaaccagaa auagcagcaa gacccaaggu gagggaucaa 720

gcaggaagga uggauuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg cucuggaucu 840

gguauuaucg uuucagaugc accaguccac gacuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggggaaugu 960

ccaaaauaug ucaaaagcac aaaauugagg auggcuacag gauuaagaaa uaucccgucu 1020

auucaaucaa gaggccuauu uggggccauu gcuggauuca uugaaggggg guggacagga 1080

augauagaug gaugguacgg uuaccaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccaaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa uucuauuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucagccaauu ggaaaaaaga 1260

auagagaguu uaaacaauaa gguugaugau ggauuccuag auauuuggac uuacaaugcc 1320

gaacugcugg uucuauugga aaaugaaaga acucuggauu aucacgauuc aaaugugaag 1380

aaccuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aagcuaaaua gagaggagau agaugggaua 1560

aagcuggaau cagcaaggau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugu uagucucucu gggggcaguc agcuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguaucua a 1701

<210> 45931
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ABR29595

<400> 45931
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uguauagguu accaugcaaa uaauucaacu gacacuguug auacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacagac auaacggaaa acuauguaaa 180

cuaaggggag uagccccauu gcauuugggu aaauguaaca uugcuggaug gcuccuggga 240

aacccagaau gugaauuacu auucacagca agcucauggu cuuacauugu ggaaacaucu 300

aacucagaca augggacaug uuacccagga gauuucauca auuaugaaga gcuaagagag 360

caguugagcu cagugucauc auuugaaaga uuugagauau uccccaaggc aaguucaugg 420

cccaaucaug aaacgaacag aggugugacg gcagcaugcc cuuaugcugg agcaaacagc 480

uucuacagaa auuuaauaug gcugguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuauguua acaauaagga gaaggaaguc cucgugcuau ggggcauuca ccauccaccu 600

accaguacug accaacaaag ucucuaccag aaugcagaug ccuauguuuu ugugggguca 660

ucaaaauaca acaagaaauu caagccagaa auagcaacaa gacccaaggu gagaggucaa 720

gcagggagaa ugaacuauua cuggacacua guagagccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugaaaagagg uucuggaucu 840

gguauuauca uuucagauac accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugaga auggcuacag gacuaaggaa uaucccgucu 1020

auucaaucua gaggucuguu uggagccauu gcuggcuuua uugagggggg auggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcu 1140

gaccgaaaga gcacacagaa ugccauugac gggaucacua acaaaguaaa cucuguuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaacaaaaa gguugaugau gguuuucugg auguuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggauu accaugacuc aaaugugaag 1380

aaccuauaug agaaaguaag aagccagcua aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac acgugcaugg agagcgucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaauca aaacuaaaca gagaggaaau agaugggggua 1560

aagcuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugu uagucucccu gggggcaauc agcuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguauuua a 1701

<210> 45932
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI291885

<400> 45932
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uguauaggcu aucaugcaaa uaauucaacu gacacuguug acacgguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaaaccaagc augacggaaa acuauguaac 180

cuaaaagggg uagccccauu gcauuugggu aaauguaaca uugcuggaug gcucuuggga 240

aacccagagu gugaaucacu auucacagca agcucauggu ccuacauagu ggaaacgccu 300

aauucagaca augggacaug uuacccagga aauuucauca auuaugagga gcuaagagag 360

cauuugagcu cugugucguc auuugaaagg uuugagauau uccccaaggc aaauucaugg 420

cccaaccaug auacgaauaa gggggugacg gcagcaugcc cuuaugcugg ggcaaacagc 480

uuuuacagaa auuuaauaug gcuaguaaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua acaacaagaa gaaggaaguc cucgugauau ggggcaucca ccauccaccc 600

accagcacug aucaacaaac ucucuaccag aaugcagaug ccuauguuuu ugugggauca 660

ucaaaauaca gcaaaagauu cgagccagaa auagcagcaa gacccaaggu gaggaaucaa 720

gcaggaagaa ugaacuauua cuggacacua auagaaccug gagacacaau aacauucgaa 780

gcaacuggaa aucuaguggu accaagauau gccuucgcaa ugagaagagg cucuggaucu 840

gguauuaucg uuucagaugc accaguccac gauuguaaua cgacuuguca aacacccaaa 900

ggugcuauaa acaccagccu uccauuucag aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug ucaaaagcac aaaauugagg auggcuacag gauuaagaaa uaucccgucu 1020

auucaaucaa gaggccuauu uggggccauu gcuggcuucc uugaaggggg guggacagga 1080

augauagaug gaugguacgg uuaccaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccaaaaga gcacacagaa cgccauugac gggaucacua acaaaguaaa uucuauuauu 1200

gaaaagauga acacacaauu cacagcagug gguaaagaau ucagccaauu ggaaaaaaga 1260

auagagaguu uaaacaauaa ggucgaugau gggguuccuag acauuuggac uuacaaugcc 1320

gaaaugcugg uucuauugga aaaugaaaga acucuggauu aucacgauuc aaaugugaag 1380

aaccuauaug aaaaaguaag aagccagcua aaaaacaaug ccaaagaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg agagugucaa aaaugggacu 1500

uaugauuacc caaaauacuc agaagaagca aagcuaaaua gagaggagau agaugggggua 1560

aagcuggaau cagcaagaau uuaccagauu uuggcgaucu auucaacugu cgccagcuca 1620

uugguacugu uagucucucu gggggcaguc aguuucugga ugugcuccaa ugggucuuua 1680

cagugcagaa uauguaucua a 1701

<210> 45933
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI176515

<400> 45933
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45934
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

hemagglutinin__InfluenzaA__EPI189182

<400> 45934

augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggguca 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gaggggucaa 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

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gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45935
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI180574

<400> 45935
augaaggcaa uacuaguagu ucugcuauau acauuugcaa ccgcaaaugc agacacauua 60

uguauagguu aucaugcgaa caauucaaca gacacuguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu uaaccuucua gaagacaagc auaacgggaa acuaugcaaa 180

cuaagagggg uagccccauu gcauuugggu aaauguaaca uugcuggcug gauccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucu 300

aguucagaca auggaacgug uuacccagga gauuucaucg auuaugagga gcuaagagag 360

caauugagcu cagugucauc auuugaaagg uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acucgaacaa agguguaacg gcagcauguc cucaugcugg agcaaaaagc 480

uucuacaaaa auuuaauaug gcuaguuaaa aaaggaaauu cauacccaaa gcucagcaaa 540

uccuacauua augauaaagg gaaagaaguc cucgugcuau ggggcauuca ccauccaucu 600

acuagugcug accaacaaag ucucuaucag aaugcagaug cauauguuuu ugugggggucg 660

ucaagauaca gcaagaaguu caagccggaa auagcaauaa gacccaaagu gagggaucga 720

gaagggagaa ugaacuauua cuggacacua guagagccgg gagacaaaau aacauucgaa 780

gcaacuggaa aucuaguggu accgagauau gcauucgcaa uggaaagaaa ugcuggaucu 840

gguauuauca uuucagauac accaguccac gauugcaaua caacuuguca gacacccaag 900

ggugcuauaa acaccagccu cccauuucag aauauacauc cgaucacaau uggaaaaugu 960

ccaaaauaug uaaaaagcac aaaauugaga cuggccacag gauugaggaa uguccccgucu 1020

auucaaucua gaggccuauu uggggccauu gccgguuuca uugaaggggg guggacaggg 1080

augguagaug gaugguacgg uuaucaccau caaaaugagc aggggucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gaaauuacua acaaaguaaa uucuguuauu 1200

gaaaagauga auacacaguu cacagcagua gguaaagagu ucaaccaccu ggaaaaaaga 1260

auagagaauu uaaauaaaaa aguugaugau gguuuccugg acauuuggac uuacaaugcc 1320

gaacuguugg uucuauugga aaaugaaaga acuuuggacu accacgauuc aaaugugaag 1380

aacuuauaug aaaagguaag aagccagcua aaaaacaaug ccaaggaaau uggaaacggc 1440

ugcuuugaau uuuaccacaa augcgauaac acgugcaugg aaagugucaa aaaugggacu 1500

uaugacuacc caaaauacuc agaggaagca aaauuaaaca gagaagaaau agaugggggua 1560

aaacuggaau caacaaggau uuaccagauu uuggcgaucu auucaacugu cgccaguuca 1620

uugguacugg uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucucua 1680

caguguagaa uauguauuua a 1701

<210> 45936
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI377499

<400> 45936
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga auggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45937
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI346916

<400> 45937
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uguauagguu aucaugcgaa caauucaacu gacaccguag acacaguacu agaaaagaau 120

guaacaguaa cacacucugu caaccuucua gaaaacaggc auaaugggaa acuauguaaa 180

cuaagagggg uagcuccauu gcauuugggu aaauguaaca uugcuggaug gcuccuggga 240

aauccagagu gugaaucacu cuccacagca agcucauggu ccuacauugu ggaaacaucc 300

aauucagaca augggacgug uuacccagga gauuucauca auuaugagga gcuaagagag 360

caguugagcu cagugucauc guuugaaaga uuugagauau uccccaagac aaguucaugg 420

cccaaucaug acacgaacag aggugugacg gcagcauguc cucaugaugg aacaaacagc 480

uucuacagaa auuuaauaug gcuaguaaaa aagggaaauu cauacccaaa gaucaacaaa 540

uccuacauua acaauaaaga gaaagaaauu cucgugcuau gggccauuca ccauccaucu 600

accagugccg accaacaaag ucucuaccaa aaugcagaug ccuauguuuu ugugggauca 660

ucaagauaca gcaggaaguu cgagccagaa guagcaacaa gacccaaggu gagggaccaa 720

gcagggagaa ugaacuauua cuggacacua guagaaccug gagacaagau aacauuugaa 780

gcaacuggaa aucuaguggu accgagauau gcuuucgcau ugaaaagaaa uucuggaucu 840

gguaucauca uuucagauac aucaguccac gauugugaua cgaauuguca gacacccaau 900

ggugcuauaa acaccagccu cccauuucaa aauauacauc cagucacaau uggagaaugu 960

ccaaaauaug uaaaaaguac uaaacugaga auggccacag gauuaagaaa uaucccgucu 1020

auccaaucua gaggccuguu uggggccauu gcuggcuuua ucgaaggggg cuggacagga 1080

augauagaug gaugguacgg uuaucaccau caaaaugagc agggaucagg auaugcagcc 1140

gaccugaaga gcacacagaa ugccauugac gggaucacua acaagguaaa uucuguuauu 1200

gaaaagauga acacacaauu cacagcagua gguaaagagu ucagccacuu ggaaagaaga 1260

auagagaauu uaaauaaaaa gguugaugau gguuuucuag auauuuggac uuacaaugcc 1320

gaacuguugg uucuauuaga aaaugaaaga acuuuggauu accacgacuc aaaugugaaa 1380

aacuuauaug aaaaagugag aagccagcug aaaaacaaug ccaaggaaau uggaaauggc 1440

ugcuuugaau uuuaccacaa augugaugac augugcaugg aaagcgucaa aaauggaacu 1500

uaugauuacc cuaaauacuc agaggaagca aaacuaaaca gagaggaaau agaugggugg 1560

aaguuggaau caacaaggau uuaccaaauu uuggcgaucu auucaacggu cgccaguuca 1620

uugguacuag uagucucccu gggggcaauc aguuucugga ugugcucuaa ugggucgcua 1680

cagugcagaa uauguauuua a 1701

<210> 45938

<211> 1689
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACV49600

<400> 45938
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ggauaccaug ccaauaauuc cacagagaag gucgacacaa uucuagagcg gaacgucacu 120

gugacucaug ccaaggacau ucuugagaag acccauaacg gaaaguuaug caaacuaaac 180

ggaaucccuc cacuugaacu aggggacugu agcauugccg gauggcuccu uggaaaucca 240

gaaugugaua ggcuucuaag ugugccagaa ugguccuaua uaauggagaa agaaaacccg 300

agagacgguu uguguuaucc aggcagcuuc aaugauuaug aagaauugaa acaucuccuc 360

agcagcguga aacauuucga gaaaguaaag auucugccca aagauagaug gacacagcau 420

acaacaacug gagguucacg ggccugcgcg gugucuggua auccaucauu cuucaggaac 480

auggucuggc ugacagagaa aggaucaaau uauccgguug ccaaaggauc guacaacaau 540

acaagcggag aacaaaugcu aauaauuugg ggggugcacc aucccaauga ugagacagaa 600

caaagaacau uguaccagaa ugugggaacc uauguuuccg uaggcacauc aacauugaac 660

aaaaggucaa ccccagaaau agcaacaagg ccuaaaguga auggacaagg agguagaaug 720

gaauucucuu ggacccucuu ggauaugugg gacaccauaa auuuugagag uacugguaau 780

cuaauugcac cagaguaugg auucaaaaua ucgaaaagag guaguucagg gaucaugaaa 840

acagaaggaa cacuugagaa cugugagacc aaaugccaaa cuccuuuggg agcaauaaau 900

acaacauugc cuuuucacaa uguccaccca cugacaauag gugagugccc caaauaugua 960

aaaucggaga aguuggucuu agcaacagga cuaaggaaug uuccccagau ugaaucaaga 1020

ggauuguuug gggcaauagc ugguuuuaua gaaggaggau ggcaaggaau gguugauggu 1080

ugguauggau accaucacag caaugaccag ggaucagggu augcagcaga caaagaaucc 1140

acucaaaagg cauuugaugg aaucaccaac aagguaaauu cugugauuga aaagaugaac 1200

acccaauuug aagcuguugg gaaagaauuc aguaacuuag agagaagacu ggagaacuug 1260

aacaaaaaga uggaagacgg guuucuagau guguggacau acaaugcuga gcuucuaguu 1320

cugauggaaa augagaggac acuugacuuu caugauucua augucaagaa ucuguaugau 1380

aaagucagaa ugcagcugag agacaacguc aaagaacuag gaaauggaug uuuugaauuu 1440

uaucacaaau gugaugauga augcaugaau agugugaaaa acgggacgua ugauuauccc 1500

aaguaugaag aagagucuaa acuaaauaga aaugaaauca aagggguaaa auugagcagc 1560

augggggguuu aucaaauccu ugccauuuau gcuacaguag cagguucucu gucacuggca 1620

aucaugaugg cugggaucuc uuucuggaug ugcuccaacg ggucucugca gugcaggauc 1680

ugcauauga 1689

<210> 45939
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__BAF48361

<400> 45939
augaagacca ucauugcuuu gagcuacauu uucugucugg cucucggcca agaccuucca 60

ggaaaugaca acagcacagc aacgcugugc cugggacauc augcggugcc aaacggaaca 120

cuagugaaaa caaucacaga ugaucagauu gaagugacua augcuacuga gcuaguucag 180

agcuccucaa cggggaaaau augcaacaau ccucaucgaa uccuugaugg aauagacugc 240

acacugauag augcucuauu gggggacccu cauugugaug uuuuucaaaa ugagacaugg 300

gaccuuuucg uugaacgcag caaagcuuuc agcaacuguu acccuuauga ugugccagau 360

uaugccuccc uuaggucacu aguugccucg ucaggcacuc uggaguuuau cacugagggu 420

uucacuugga cugggggucac ucagaauggg ggaagcaaug cuugcaaaag gggaccuggu 480

agcgguuuuu ucaguagacu gaacugguug accaaaucag gaagcacaua uccagugcug 540

aacgugacua ugccaaacaa ugacaauuuu gacaaacuau acauuugggg gguucaccac 600

ccgagcacga accaagaaca aaccagccug uauguucaag caucagggag agucacaguc 660

ucuaccagga gaagccagca aacuauaauc ccgaauaucg aguccagacc cuggguaagg 720

ggucugucua guagaauaag caucuauugg acaauaguua agccgggaga cguacuggua 780

auuaauagua augggaaccu aaucgcuccu cgggguuauu ucaaaaugcg cacugggaaa 840

agcucaauaa ugaggucaga ugcaccuauu gauaccugua uuucugaaug caucacucca 900

aauggaagca uucccaauga caagcccuuu caaaacguaa acaagaucac auauggagca 960

ugccccaagu auguuaagca aaacacccug aaguuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggccu auucggcgca auagcagguu ucauagaaaa ugguugggag 1080

ggaaugauag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagccauc gaccaaauca augggaaauu gaacagggua 1200

aucgagaaga cgaacgagaa auuccaucaa aucgaaaagg aauucucaga aguagaaggg 1260

agaauucagg accucgagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcggagcuuc uugucgcucu ggagaaucaa cauacaauug accugacuga cucggaaaug 1380

aacaagcugu uugaaaaaac aaggaggcaa cugagggaaa augcugaaga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aacgcuugca uagagucaau cagaaauggg 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguuuca gaucaaaggu 1560

guugaacuga agucuggaua caaagacugg auccugugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcugggguuc aucauguggg ccugccagag aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45940
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI507594

<400> 45940
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcaaaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauuuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacacug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu uugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45941
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI461953

<400> 45941

augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacacug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu uugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45942
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI461953/m1

<400> 45942
augaagacua ucauugcuuu gagcuacauu cuaugucugg uuuucgcuca aaaacuuccu 60

ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcaaaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauauagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacacug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu uugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45943
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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<400> 45943
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45944
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI578446

<400> 45944
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45945
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI551882

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcgcccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauauaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45946
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI344389

<400> 45946
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ggaagugaca acagcauggc aacgcugugc cugggacacc augcagugcc aaacggaaca 120

uuagugaaaa caaucacgga ugaccaaauu gaagugacua augcuacuga gcugguccag 180

aguuccucaa caggcagaau augcaacagu ccucaccaaa uccuugaugg gaaaaauugc 240

acacugauag augcucuauu gggggacccu cauugugaug accuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag cacagccuac agcaacuguu acccuuauua ugugccagau 360

uaugccaccc uuaggucacu aguugccuca ucuggcaacc uggaauuuac ccaagaaagc 420

uucaauugga cuggaguugc ucaagacgga ucaagcuaug ccugcagaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug uauaacuuga auuacaagua uccagagcag 540

aacguaacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccaaucua uauguccaag caucagggag aguuauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acgauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu cgggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacacauu gaugaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaagaucac auauggagcc 960

ugucccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucagaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca ccgggaaacu aaauagagua 1200

aucaagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuagagaa auacguugaa gacaccaaaa uagaucucug gucuuacaac 1320

gcugagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaaccga cucagagaug 1380

agcaaacugu ucgaaagaac aagaaggcaa cugcgggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauauaua cagaaacgag gcauuaaaca aucgguucca gaucaaaggu 1560

guucagcuaa agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguucu gcugggguuc auuauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45947
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI348782

<400> 45947
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ggaagugaca acagcauggc aacgcugugc cugggacacc augcagugcc aaacggaaca 120

uuagugaaaa caaucacgga ugaccaaauu gaagugacua augcuacuga gcugguccag 180

aguuccucaa caggcagaau augcaacagu ccucaccaaa uccuugaugg gaaaaauugc 240

acacugauag augcucuauu gggggacccu cauugugaug accuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag cacagccuac agcaacuguu acccuuauua ugugccagau 360

uaugccaccc uuaggucacu aguugccuca ucuggcaacc uggaauuuac ccaagaaagc 420

uucaauugga cuggaguugc ucaagacgga ucaagcuaug ccugcagaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug uauaaauuga auuacaagua uccagagcag 540

aacguaacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccaauaua uauguccaag caucagggag aguuauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acgauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu cgggguuacu ucaaaauaca aaugugggaaa 840

agcucaauaa ugagaucaga ugcacacauu gaugaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaagaucac auauggagcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucagaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca ccgggaaacu aaauagagua 1200

aucaagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuagagaa auacguugaa gacaccaaaa uagaucucug gucuuacaac 1320

gcugagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaaccga cucagagaug 1380

agcaaacugu ucgaaagaac aagaaggcaa cugcgggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauauaua cagaaacgag gcauuaaaca aucgguucca gaucaaaggu 1560

guucagcuaa agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguucu gcugggguuc auuauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45948
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI642513

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ggaagugaca aaagcauggc aacgcugugc cugggacacc augcagugcc aaacggaaca 120

uuagugaaaa caaucacgga ugaccaaauu gaagugacua augcuacuga gcugguccag 180

aguuccucaa caaguagaau augcaacagu ccucaccaaa uccuugaugg gaaaaacugc 240

acacugauag augcucuauu gggggacccu cauugugaug acuuccaaaa caagaaaugg 300

gaccuuuuug uugaacgaag cacagccuac agcaacuguu acccuuauua ugugccagau 360

uaugccaccc uuaggucacu aauugccuca ucuggcaacc uggaauuuac ccaagaaagc 420

uucaauugga cuggaguugc ucaagacgga ucaagcuaug ccugcagaag gggguucuguu 480

aacaguuucu uuaguagauu gaauugguug uauaacuuga auuacaagua uccagaacag 540

aacguaacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccaaccua uauguccaag caucagggag aguuauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acgauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu cgggguuacu ucaaaauaca aaugggaaa 840

agcucaauaa ugagaucaga ugcacacauu gaugaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaagaucac auauggagcc 960

ugucccagau auguuaagca aaacacccug aaguuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucagaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcggcaauc aaccaaauca ccgggaaacu aaauagagua 1200

aucaagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuagagaa auacguugaa gacacuaaaa uagaucucug gucuuacaau 1320

gcugagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaaccga cucagagaug 1380

agcaaacugu ucgaaagaac aagaaggcaa cugcgggaaa augcugagga caugggcaau 1440

gguugcuuua aaauauacca caaaugugac aacgccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauauaua cagaaacgag gcauuaaaca aucgguuuca gaucaaaggu 1560

guucagcuaa agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguuguucu gcugggguuc auuauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuua a 1701

<210> 45949
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI293965

<400> 45949
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ggaagugaca acagcauggc aacgcugugc cugggacacc augcagugcc aaacggaaca 120

uuagugaaaa caaucacgga ugaccaaauu gaagugacua augcuacuga gcugguccag 180

aguuccucaa cagguagaau augcaacagu ccucaccaaa uccuugaugg gaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag cacagccuac agcaacuguu acccuuauua ugugccggau 360

uaugccaccc uuaggucacu aguugccuca uccggcaacc uggaauuuac ccaagaaagc 420

uucaauugga cuggaguugc ucaagacgga ucaagcuaug ccugcagaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug uauaauuuga auuacaagua uccagagcag 540

aacguaacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccaaccua uauguccaag caucagggag aguuauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acgauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu cgggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacacauu gaugaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaagaucac auauggagcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

ggaaugguag acgguuggua cgguuucagg caucagaauu cugaaggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc aaccaaauca ccgggaaacu aaauagagua 1200

aucaagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuagagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaaccga cucagagaug 1380

agcaaacugu ucgaaagaac aagaaggcaa cugcgggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauauaua cagaaacgag gcauuaaaca aucgguucca gaucaaaggu 1560

guucagcuaa agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguucu gcugggguuc auuauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45950
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI465400

<400> 45950
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ggaagugaca acagcauggc aacgcugugc cugggacacc augcagugcc aaacggaaca 120

uuagugaaaa caaucacgga ugaccaaauu gaagugacua augcuacuga gcugguccag 180

aguuccucaa cagguagaau augcaacagu ccucaccaaa uccuugaugg gaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag cacagccuac agcaacuguu acccuuauua ugugccggau 360

uaugccaccc uuaggucacu aguugccuca uccggcaacc uggaauuuac ccaagaaagc 420

uucaauugga cuggaguugc ucaagacgga ucaagcuaug ccugcagaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug uauaauuuga auuacaagua uccagagcag 540

aacguaacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccaaacua uauguccaag caucagggag aguuauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acgauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu cgggguuacu ucaaaauaca aaguggaaa 840

agcucaauaa ugagaucaga ugcacacauu gaugaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaagaucac auauggagcc 960

ugucccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg gaauguacca 1020

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gcagaucuua aaagcacuca agcagcaauc aaccaaauca ccgggaaacu aaauagagua 1200

aucaagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuagagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaaccga cucagagaug 1380

agcaaacugu ucgaaagaac aagaaggcaa cugcgggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauauaua cagaaacgag gcauuaaaca aucgguucca gaucaaaggu 1560

guucagcuaa agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

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uuagugaaaa caaucacgga ugaccaaauu gaagugacua augcuacuga gcugguccag 180

aguuccucaa cagguagaau augcaacagu ccucaccaaa uccuugaugg gaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa caaggaaugg 300

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uaugccaccc uuaggucacu aguugccuca uccggcaacc uggaauuuac ccaagaaagc 420

uucaauugga cuggaguugc ucaagacgga ucaagcuaug ccugcagaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug uauaauuuga auuacaagua uccagagcag 540

aacguaacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccaaaaua uauguccaag caucagggag aguuauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

ggugucucca gcauaauaag caucuauugg acgauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu cgggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacacauu gaugaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaagaucac auauggagcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca auugcagguu ucauagaaaa ugguuggggag 1080

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gcagaucuua aaagcacuca agcagcaauc aaccaaauca ccgggaaacu aaauagagua 1200

aucaagaaaa cgaacgagaa auuccaccaa aucgaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuagagaa auacguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaaccga cucagagaug 1380

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gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauauaua cagaaacgag gcauuaaaca aucgguucca gaucaaaggu 1560

guucagcuaa agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

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uuagugaaaa caaucacgga ugaccaaauu gaagugacua augcuacuga gcugguccag 180

aguuccucaa cagguagaau augcaacagu ccucaccaaa uccuugaugg gaaaaauugc 240

acacugauag augcucuauu gggagacccu cauugugaug acuuccaaaa caaggaaugg 300

gaccuuuuug uugaacgaag cacagccuac agcaacuguu acccuuauua ugugccggau 360

uaugccaccc uuaggucacu aguugccuca uccggcaacc uggaauuuac ccaagaaagc 420

uucaauugga cuggaguugc ucaagacgga ucaagcuaug ccugcagaag gggaucuguu 480

aacaguuucu uuaguagauu gaauugguug uauaauuuga auuacaagua uccagagcag 540

aacguaacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaccaaaaua uauguccaag caucagggag aguuauaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg ggucuagacc cuggguaagg 720

gguguucuccca gcauaauaag caucuauugg acgauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugccccu cgggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacacauu gaugaaugca auucugaaug cauuacucca 900

aauggaagca uucccaauga caaaccuuuu caaaauguaa acaagaucac auauggagcc 960

uguccccagau auguuaagca aaacacccug aaauuggcaa caggaaugcg gaauguacca 1020

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gcagaucuua aaagcacuca agcagcaauc aaccaaauca ccgggaaacu aaauagagua 1200

aucaagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauucucaga aguagaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug auuuaaccga cucagagaug 1380

agcaaacugu ucgaaagaac aagaaggcaa cugcgggaaa augcugagga caugggcaau 1440

gguugcuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc augauauaua cagaaacgag gcauuaaaca aucgguucca gaucaaaggu 1560

guucagcuaa agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

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<212> RNA
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg aaaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagagaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa cgaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacucaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacag acaaggacca aaucuuccug uaugcucacu caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauaca aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caagccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaaugaagg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

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agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugagaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcuuuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<212> RNA
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

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agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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aggugcaaca uuugcauuug a 1701

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<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aaugugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

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gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

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gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

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<210> 45957
<211> 1701
<212> RNA
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<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

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uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucauagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45958
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucauagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauagcccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45959
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI577026

<400> 45959

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ggaaaugaca auaacacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagaaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45960
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI404927

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45961
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucug cuugcaaaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugagcaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca aaucugaaug uaucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45962
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI530647

<400> 45962
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45963
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI541083

<400> 45963
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uuccuaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auucuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45964
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI684315

<400> 45964
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuucccg uaugcucaau caucaggaag aaucauagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auucuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45965
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI614462

<400> 45965
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccagaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauua ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45966
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI541465

<400> 45966
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccagaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauua ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45967
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI696967

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccgcuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggagacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccagaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauua ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45968
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccagaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggaaa 840

agcucaauua ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45969
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45969
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45970
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI530679

<400> 45970

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaagga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45971
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__AAG01785

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ggaaaugaca acagcacagc aacgcugugc cugggacacc augcagugcc aaacggaacc 120

cuagugaaaa caaucacgaa ugaucaaauu gaagugacua augcuacuga gcugguucag 180

aguuccucaa cagguagaau augcgacagu ccucaccgaa uccuugaugg aaaaaacugc 240

acauugauag augcucuacu aggagacccu cauugcgaug gcuuucaaaa uaaggaaugg 300

gaccuuuuua uugaacgcag caaagcuuac agcaacuguu acccuuauga ugugccggau 360

uauuccuccc uuaggucacu aguugccuca ucaggcaccc uggaguuuac caaugaagac 420

uucaauugga cuggggucgc ucaggauggg ggaagcuauu cuugcaaaag ggaaucuguu 480

aaaaguuucu uuaguagauu gaauugguug cacaaauuag aauacaaaua uccagcacug 540

aacgugacua ugccaaacaa ugacaaauuu gacaaauugu acauuugggg gguucaccau 600

ccgagcacgg acagugaaca aaccagccua uauguucaag caauagggag agucacaguc 660

ucuaccaaaa guagccaaca aacuguaauc ccgaacaucg gguccagacc cugggugagg 720

ggcaucucca guagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuagcagca cagggaaucu aauugcuccu cgggguuacu ucaaaauacg aaaugggaaa 840

agcucaauaa ugaggucaga ugcacccauu gacaacugcu auucugaaug caucacucca 900

aauggaagca uucccaauga caagccuuuu caaaauguaa acaggaucac auaugggcc 960

uguccccaaau auguuaagca aaaaacucug aaauuggcaa cagggaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auucggcgca aucgcagguu ucauagaaaa ugguugggag 1080

ggaaugguag acgguuggua cgguuucagg caucaaaauu cugagggcac aggacaagca 1140

gcagaucuua aaagcacuca agcagcaauc gaucaaguca acgggaaauu gaauagguua 1200

aucgagaaaa cgaacgagaa auuccaucaa aucgaaaaag aauuuucaga aguagaaggg 1260

agaauucagg accucgagaa auauguugaa gacacuaaaa uagaucucug gucuuacaac 1320

gcggagcucc uuguugcccu ggagaaucaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaggaagcaa cugagggaaa augcugagga caugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uagggucaau cagaaaugga 1500

acuuaugacc augauguaua cagagacgaa gcauuaaaca accgguucca gaucaaaggu 1560

guugagcuga aaucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugc 1620

uuuuugcuuu guguuguuuu gcuggguuuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45972
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI814528

<400> 45972
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucua aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45973
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI674736

<400> 45973
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45974

<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI614444

<400> 45974
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcauaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45975
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccgcuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

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gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45976
<211> 1701
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__EPI696955

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauauagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

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<210> 45977
<211> 1701
<212> RNA
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<220>
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<400> 45977

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga gcugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauuggg cuggagucac ucaaaacgga acaaguucuu cuugcagaag gggaucuaau 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuccaaaua cccagcauua 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcacaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauuuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagagacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cggcuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacaaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagggaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45978
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga auggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gaucuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aagugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45979
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI391247

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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga auggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauuuagacc cagaauaagg 720

aauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45980
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 45980
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga auggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauuuagacc cagaauaagg 720

aauaacccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucggggaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45981
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI407126

<400> 45981
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auagugaaaa caaucacgaa ugaccgaauu gaaguuacua augcuacuga acugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga auggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuaau 480

aauaguuucu uuaguagauu aaauugguug acccacuuaa acuucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccgguuacgg acaaggacca aaucuuccug uaugcucaac caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccgaauaucg gauuuagacc cagaauaagg 720

aauaacccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aagcacucug aaauuggcaa caggaaugcg gaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgauug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaaggg 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa gggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45982
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI562037

<400> 45982
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca gaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45983
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI562034

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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacacaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca gaucuuccug uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gauaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaugugggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguugggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guugggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45984
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI653140

<400> 45984
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ggaaaugaca auagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacaaa ugaccgaauu gaaguuacua augcuacuga guugguucag 180

aauuccucaa uaggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuucaaaa uaagaaaugg 300

gaccuuuuug uugaacgaag caaagccuac agcagcuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaaguucug cuugcauaag gagaucuagu 480

aguaguuucu uuaguagauu aaauugguug acccacuuaa acuacaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaacaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaggacca gaucuucccg uaugcucaau caucaggaag aaucacagua 660

ucuaccaaaa gaagccaaca agcuguaauc ccaaauaucg gaucuagacc cagaauaagg 720

gguaucccua gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca agucugaaug caucacucca 900

aauggaagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

ugucccagau auguuaagca uagcacucug aaauuggcaa caggaaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca auagcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaag aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaaucgguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaaag aauucucaga aguagaagga 1260

agaauucagg accuugagaa auauguugag gacacuaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggaaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau aagaaaugga 1500

acuuaugacc acaaugugua cagggaugaa gcauuaaaca accgguuuca gaucaaggga 1560

guugagcuga agucagggua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45985
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACR48873/m

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuggggu gagcucagca uguccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau cgaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

agaagaagaa aaaagagagg auuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

auuauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa caacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucuaguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucauaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaauuuac caaauauugu caauuuauuc uacaguggcg 1620

agcucccuag cacuggcaau caugguagcu ggucuauccu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45986
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACR48874/m

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

gauggaguga agccucuaau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguсuu acauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccagu 420

caugaagccu cauuggggu gagcucagca uguccauacc agggaaaguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggga uucaccaucc uaaggaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua gcaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

agaagaagaa aaaagagagg auuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccauagca acgagcaggg gagugggguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

auuauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa caacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uccuagaugu cuggacuuau 1320

aaugcugaac uucuaguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucauaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaauuuac caaauauugu caauuuauuc uacaguggcg 1620

agcucccuag cacuggcaau caugguagcu ggucuauccu uauggaugug cuccaauggg 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45987
<211> 1701
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__ACD47234

<400> 45987
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ggaaaugaca acagcacggc aacgcugugc cuugggcacc augcaguacc aaacggaacg 120

auagugaaaa caaucacgaa ugaccaaauu gaaguuacua augcuacuga gcugguucag 180

aguuccucaa caggugaaau augcgacagu ccucaucaga uccuugaugg agaaaacugc 240

acacuaauag augcucuauu gggagacccu cagugugaug gcuuccaaaa uaagaaaugg 300

gaccuuuuug uugaacgcag caaagccuac agcaacuguu acccuuauga ugugccggau 360

uaugccuccc uuaggucacu aguugccuca uccggcacac uggaguuuaa caaugaaagc 420

uucaauugga cuggagucac ucaaaacgga acaagcucuu cuugcauaag gggaucuaau 480

aacaguuucu uuaguagauu gaauugguug acccacuuaa aauucaaaua cccagcauug 540

aacgugacua ugccaaacaa ugaaaaauuu gacaaauugu acauuugggg gguucaccac 600

ccggguacgg acaaugacca aaucuucccg uaugcucaag caucaggaag aaucacaguc 660

ucuaccaaaa gaagccaaca aacuguaauc ccgaauaucg gaucuagacc cagaguaagg 720

aauaucccca gcagaauaag caucuauugg acaauaguaa aaccgggaga cauacuuuug 780

auuaacagca cagggaaucu aauugcuccu agggguuacu ucaaaauacg aaguggggaaa 840

agcucaauaa ugagaucaga ugcacccauu ggcaaaugca auucugaaug caucacucca 900

aaugggagca uucccaauga caaaccauuc caaaauguaa acaggaucac auacggggcc 960

uguccccagau auguuaagca aaacacucug aaauuggcaa cagggaugcg aaauguacca 1020

gagaaacaaa cuagaggcau auuuggcgca aucgcggguu ucauagaaaa ugguuggggag 1080

ggaauggugg augguuggua cgguuucagg caucaaaauu cugagggaau aggacaagca 1140

gcagaucuca aaagcacuca agcagcaauc gaucaaauca augggaagcu gaauagguug 1200

aucgggaaaa ccaacgagaa auuccaucag auugaaaagg aauucucaga agucgaaggg 1260

aggauucagg accuugagaa auauguugag gacaccaaaa uagaucucug gucauacaac 1320

gcggagcuuc uuguugcccu ggagaaccaa cauacaauug aucuaacuga cucagaaaug 1380

aacaaacugu uugaaaaaac aaagaagcaa cugagggaaa augcugagga uaugggcaau 1440

gguuguuuca aaauauacca caaaugugac aaugccugca uaggaucaau cagaaaugga 1500

acuuaugacc acgauguaua cagagaugaa gcauuaaaca accgguucca gaucaagggc 1560

guugagcuga agucaggaua caaagauugg auccuaugga uuuccuuugc cauaucaugu 1620

uuuuugcuuu guguugcuuu guuggggguuc aucauguggg ccugccaaaa aggcaacauu 1680

aggugcaaca uuugcauuug a 1701

<210> 45988
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

hemagglutinin__InfluenzaA__ACZ36881

<400> 45988

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguc 120

acuguuacac acgcacaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaagguc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gacugguacc aaaaauagcu acuagaucca agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ccgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa gaaagagagg acuauuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucauagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuaucuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 45989
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI500771

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auugguuauc augcaaauaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucggaaau 240

ccauugugug acgaauucac caaugugcca gaaugguсuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaggaacu aaaacaccua 360

uugagcagga uaaaccauuu ugagaaaaua cagaucaucc ccaaagauuc uuggucagau 420

caugaagccu cauuggggu gagcgcagca uguucauacc agggaaauuc cuccuucuuc 480

agaaaugugg uguggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaggcuac 540

aauaauacca accgagaaga ucucuugaua cugugggga uccaccaucc uaaugaugaa 600

gcagagcaga caaagcucua ucaaaaccca acuaccuaua uuuccauugg gacuucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaauaaacag gcaaaguggc 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugacg caauccauuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaagggaga cuccacaauc 840

augagaagug agguggaaua ugguaacugc aacaccaggu gucagacucc aauaggggcg 900

auaaacucua gcaugccauu ccacaacaua cacccucuca cuaucggaga auguccccaaa 960

uaugugaaau caaacaaauu aguccuugca acugggcuca gaaauagucc ucaaagagag 1020

agaagaagaa aaagaggacu guuuggagcu auagcagguu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cacagcaaug aacagggaag ugguuacgcu 1140

gcagacaaag aaucuacuca aaaggcgaua gacggaguaa ccaauaaggu caauucgauc 1200

auugauaaaa ugaacacuca guuugaggcu guaggaaggg aauuuaauaa cuuggagagg 1260

agaauagaaa auuuaaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggagaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgauaaggu ccgacuacag cuuaaggaua augcaaaaga gcugggaaac 1440

gguuguuucg aguucuauca caaauguaau aaugaaugua uggaaagugu aagaaacggg 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaacugg aaucaauagg aaucuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucccuagugc uggcaaucau gauggcuggu cuaucuuuau ggauguguuc caacgggucg 1680

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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaagguc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaagaac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ccgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaauugaa 1020

acuagaggau uauuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu auggguacca ccauagcaac gagcagggga gugggguacgc ugcagacaaa 1140

gaauccacuc aaaaggcaau agauggaguc accaauaagg ucaacucgau cauugacaaa 1200

augaacacuc aguuugaggc cguuggaagg gaauuuaaua acuuagaaag gagaauagaa 1260

aauuuaaaca agaagaugga agacggauuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cugguucuca uggaaaauga gagaacucua gacuuucaug acucaaaugu caagaaccuu 1380

uacgacaagg uccgacuaca gcuuagggau aaugcaaagg agcuugguaa cgguuguuuc 1440

gaguucuauc acagauguga uaaugaaugu auggaaagug uaagaaacgg aacguaugac 1500

uacccgcagu auucagaaga agcaagauua aaaagagagg aaauaagugg aguaaaauug 1560

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acuguuacac augcucaaga cauacuggag aagacacaca augggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucgggaac 240

ccgaugugug acgaauucau cgaugugcca gaaugucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu aaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaaua cggaucaucc ccaaagauuc uuggccagau 420

caugaagccu cauuggggu gagcgcagca uguucauacc agggaaauuc cuccuuuuuc 480

agaaaugugg uauggcuucu caaaaaggac aaugcauacc caauaauaaa gaaaagcuac 540

aauaauacca auaaagaaga ucucuuggua cugugggga uccaccaucc uaaugaugag 600

gcagagcaga caaggcucua ucaaaaccca accaccuaug uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauaguca agaaaggaga cucaacaauu 840

augagaagug aaguggaaua ugguaacugc agcaccaggu gucagacucc gaugggggca 900

auaaauucua guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucaaauagaa 1020

agaagaagaa gaaaaagagg acuguuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccacagca augagcaggg gaguggauau 1140

gcugcagaca aagaauccac ucaaaaggca auagaugggg ucaccaauaa agucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcaguaggaa gggaauuuaa uaacuuagag 1260

aggagaauag agaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uccugguucu aauggaaaau gagagaacuc uagacuucca ugacucaaau 1380

gucaagaacc uuuacgacaa ggucagacua cagcuuaggg auaaugcaaa agagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauauugu caauuuauuc aacaguggcg 1620

aguucccuag uacuggcaau caugguggcu ggucuaucuu uauggaugug uuccaacggg 1680

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<212> RNA
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acuguuacac augcucaaga cauacuggag aagacacaca augggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucgggaac 240

ccgaugugug acgaauucau cgaugugcca gaaugguсuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu aaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaaua cggaucaucc ccaaagauuc uuggccagau 420

caugaagccu cauuggggu gagcgcagca uguucauacc agggaaauuc cuccuuuuuc 480

agaaaugugg uauggcuucu caaaaaggac aaugcauacc caauaauaaa gaaaagcuac 540

aauaauacca auaaagaaga ucucuuggua cugugggggа uccaccaucc uaaugaugag 600

gcagagcaga caaggcucua ucaaaaccca accaccuaug uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aagaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauaguca agaaaggaga cucaacaauu 840

augagaagug aaguggaaua ugguaacugc agcaccaggu gucagacucc gaugggggcg 900

auaaauucua guaugccauu ccacaacaua cacccucuca ccaucggaga auguсccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucaaauagaa 1020

agaagaagaa ggaaaagggg gcuguuugga gcuauagcag guuuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guauggguac caccacagca augagcaggg gaguggauau 1140

gcugcagaca aagaauccac ucaaaaggca auagaugggg ucaccaauaa agucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcaguaggaa gggaauuuaa uaacuuagag 1260

aggagaauag agaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uccugguucu aauggaaaau gagagaacuc uagacuucca ugacucaaau 1380

gucaagaacc uuuacgacaa ggucagacua cagcuuaggg auaaugcaaa agagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauauugu caauuuauuc aacaguggcg 1620

aguucccuag uacuggcaau caugguggcu ggucuaucuu uauggaugug uuccaacggg 1680

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<220>
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acuguuacac augcccaaga cauacuggaa aagacacaua acgggaagcu cugugaucua 180

gauggaguga agccucuaau cuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu auauagugga gaaggccaau 300

ccagucaaug accucuguua cccaggggau uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaaaguuc uuggcccagu 420

caugaagccu cauuggggu gagcgcagca uguccauacc aggggaaguc cucuuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aacacauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuggua auguggggga uccaccaucc uaaugaugcg 600

gcagagcaga caaaucucua ucaaaaucca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugacacc aagaauagcu acuagaucca aaguaaacgg gcaaaguggg 720

aggauggagu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaacuuca uugcuccaga guaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aauuagaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaacucua guaugccauu ccacaauaua cauccucuca ccauugggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

ggaagaagaa aaaagagagg auuauuugga gcuauagcag guuucauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca augagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggcu auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa caacuuagaa 1260

aggagaauag agaauuuaaa caagaagaug gaagacgggu uccuggaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uggacuucca ugacucaaau 1380

guaaagaacc uuuacgacaa gguccgauua cagcuuaggg auaaugcaaa ggagcugggu 1440

aacgguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag ugugagaaac 1500

gggacguaug acuauccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

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acuguuacac augcccaaga cauacuagaa aagacacaua acggaaagcu cugugacuua 180

gauggaguua ggccucuaau uuugagagau uguaguguag cuggauggcu ucucggaaac 240

ccaaugugug acgaauucau caaugugcca gaauggucuu auauagugga gaaggccaau 300

ccagucaaug accucugcua cccaggaguu uucaaugacu augaagaauu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaagaauuc uuggcccagu 420

caugaagccu cauuggggu gagcgcagca uguccauacc aggggcaguc cucuuuuuuc 480

cgaaaugugg uguggcuuau caaaaagaac aauacauacc caacaauaaa gaggaguuac 540

aauaauacca accaagaaga ucuuuuggua augugggga uccaccaucc uaaugaugca 600

guagaacaga caaaacucua ucaaaaucca accaccuaua ucuccguugg gacgucaaca 660

uuaaaccaga gauugacacc aagaauagcu acuagaucca aaguaaaagg acuaaguggg 720

aggauggagu ucuuuuggac aaucuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca ucgcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

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auaaacucua guaugccauu ccacaauaua cauccucuca cuauuggaga augccccaaa 960

uaugugaaau caaccagauu aguccuugcg acugggcuca gaaauagccc ucaaagagag 1020

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caggggaugg uagaugguug guaugguac caucauagca acgagcaggg aagcggguac 1140

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aucauugaca aaaugaacac ucaguuugag gcuguuggga gggaauuuaa caacuuagaa 1260

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aacgguuguu uugaguucua ucacaaaugu gauaauaaau guauggaaag ugugagaaau 1500

gggacauaug acuauccgca guauucagaa gaagcaagau uaaaaagaga ggagauaagu 1560

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<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gacggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaagguc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaagaac gaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ccgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauc 840

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auaaacucua guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcg acugggcuca gaaauagccc ucaaggagag 1020

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cagggaaugg uagaugguug guauggguac caccauagca acgagcaggg gagugggguac 1140

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aucauugaca aaaugaacac ucaauuugag gccguuggaa gggaauuuaa uaacuuagaa 1260

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aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

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<211> 1713
<212> RNA
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<220>
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acuguuacac augcucaaga cauacuggag aagacacaca acgggaagcu cugcaaccua 180

gauggaguga agccucuaau ucuaaaagac uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuucu caauguguca gaauggucuu acauagugga gaaggccagu 300

ccagccaaug gccucuguua cccaggggau uucaaugacu augaagaacu gaaacaccua 360

uuaaacagaa uaacacaucu uaagaaaauu aagaucaucc ccaaaaguua uugguccaau 420

caugaagccu caucaggggu gagcgcagca uguuccuaua ugggggagcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaau aauacauacc caccaauaaa ggugaacuac 540

accaauacca aucaagaaga ucuuuuggua cugugggggа uucaccaucc caauaaugag 600

gcagagcaga uacagaucua ucaaaaccua aucacccaua uuucaguugg aacaucaaca 660

cuaaaccaga gauugauacc aaaaauagcu acuagaucca aagugaacgg gcaaagugga 720

agaauggagu ucuucuggac aauuuuaaag ccgaaugauu cuaucaauuu cgauagcaau 780

ggaaauuuca uugcuccaga auaugccuac auugucaaga aaggggacuc ggcaauuaug 840

aaaagugaau uggaguaugg uaacugcaac accaaguguc aaacuccaau gggggcgaua 900

aauucuagua ugccauucca caacauacac ccucucacca ucggggaaug ccccaaauau 960

gugaagucaa acagauuagu ccucgcgacu ggacucagaa augccccuca aagagaaaga 1020

gagggggaa gaagaagaaa aagaggacua uuuggagcca uagcaggguu uauagaggga 1080

ggauggcagg gaaugguaga ugguugguau ggguaccacc auagcaauga gcaggggagu 1140

ggguacgcug cagacaaaga auccacucaa aaggcaauag auggaaucac uaauaagguc 1200

aacucgauca uugacaaaau gaacacucaa uuugaggccg uuggaaggga auuuaauaac 1260

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acuuauaacg cugaacuucu gguucucaug gaaaaugaga gaacucuaga cuuucaugac 1380

ucaaauguca agaaccuuua cgaaaagguc cgacuacagc uuagggauaa ugcaaaggag 1440

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auaaauggag uaaaauugga aucaauggua acuuaccaaa uacugucaau uuauucaaca 1620

guggcgaguu cccuagcauu ggcaaucaug guggcugguc uaucuuuaug gaugugcucc 1680

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<211> 1713
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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acuguuacac augcucaaga cauacuggag aagacacaca acgggaagcu cugcaaccua 180

gauggaguga agccucuaau ucuaaaagac uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuucu caauguguca gaauggucuu acauagugga gaaggccagu 300

ccagccaaug gccucuguua cccaggggau uucaaugacu augaagaacu gaaacaccua 360

uuaaacagaa uaacacaucu uaagaaaauu aagaucaucc ccaaaaguua uugguccaau 420

caugaagccu caucaggggu gagcgcagca uguuccuaua ugggggagcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaau aauacauacc caccaauaaa ggugaacuac 540

accaauacca aucaagaaga ucuuuuggua cugugggggа uucaccaucc caauaaugag 600

gcagagcaga uacagaucua ucaaaaccua aucacccaua uuucaguugg aacaucaaca 660

cuaaaccaga gauugauacc aaaaauagcu acuagaucca aagugaacgg gcaaagugga 720

agaauggagu ucuucuggac aauuuuaaag ccgaaugauu cuaucaauuu cgauagcaau 780

ggaaauuuca uugcuccaga auaugccuac auugucaaga aaggggacuc ggcaauuaug 840

aaaagugaau uggaguaugg uaacugcaac accaaguguc aaacuccaau gggggcgaua 900

aauucuagua ugccauucca caacauacac ccucucacca ucggggaaug ccccaaauau 960

gugaagucaa acagauuagu ccucgcgacu ggacucagaa augccccuca aagagaaaga 1020

gagggggaa gaagaagaaa aagaggacua uuuggagcca uagcaggguu uauagaggga 1080

ggauggcagg gaaugguaga ugguugguau gggguaccacc auagcaauga gcaggggagu 1140

gggguacgcug cagacaaaga auccacucaa aaggcaauag auggaaucac uaauaagguc 1200

aacucgauca uugacaaaau gaacacucaa uuugaggccg uuggaaggga auuuaauaac 1260

uuagagagga gaauagaaaa uuuaaacaaa aagauggagg acggauuccu agaugucugg 1320

acuuauaacg cugaacuucu gguucucaug gaaaaugaga gaacucuaga cuuucaugac 1380

ucaaauguca agaaccuuua cgaaaagguc cgacuacagc uuagggauaa ugcaaaggag 1440

cuggguaacg guuguuucga guucuaccac aaaugugaua augaauguau ggaaagugua 1500

agaaacggaa cguaugacua cucgcaguau ucagaagaag caagacuaag cagagaggaa 1560

auaaauggag uaaaauugga aucaauggua acuuaccaaa uacugucaau uuauucaaca 1620

guggcgaguu cccuagcauu ggcaaucaug guggcugguc uaucuuuaug gaugugcucc 1680

aauggaucgu uacaaugcag aauuugcauu uga 1713

<210> 45998
<211> 1710
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ACO07033

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcucaaga cauacuggag aagacacaca acgggaagcu cugcaaccua 180

gaugggguga agccucuaau uuugaaagac uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuucu caauguguca gaauggucuu acauagugga gaaggccagu 300

ccagccaaug gccucuguua cccaggggau uucaaugacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccaucu uaagaaaauu aagaucaucc ccaaaaguua uugguccaau 420

caugaagccu caucaggggu gagcgcagca uguuccuauc ugggagagcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaau aauacauacc caccaauaaa ggugaacuac 540

accaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc caaugaugag 600

aaagagcaga uaaggaucua ucaaaaccca aacaccucua uuucaguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaccca aagugaacgg gcaaagugga 720

cgaauggagu ucuucuggac aauuuuaaag ccgaaugauu cuaucaauuu cgauagcaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauugcca agaaagggga cucagugauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaauucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccucgcg acuggacuca gaaaugcccc ccaaagagag 1020

ggaggaagaa ggagaaaaag aggacuauuu ggagccauag caggguuuau agagggagga 1080

uggcagggaa ugguagaugg uugguauggg uaccaccaua gcaaugagca ggggagugga 1140

uacgcugcag acaaagaauc cacucaaaag gcaauagaug gaaucaccaa uaaggucaac 1200

ucgaucauug acaaaaugaa cacucaguuu gagaucguug gaagggaauu uaauaacuua 1260

gaaaggagaa uagaaaauuu aaacaagaag auggaggacg gauuccuaga ugucuggacu 1320

uauaacgcug aacuucuggu ucucauggag aaugagagaa cucuagacuu ucaugacuca 1380

aaugucaaga accuuuacga aaagguccga cuacagcuua gggauaaugc aaaggagcug 1440

gguaacgguu guuuugaguu cuaccacaaa ugugauaaug aauguaugga aaguguaaga 1500

aacggaacgu augacuaccc gcaguauuca gaagaagcaa gacuaagcag agaggaaaua 1560

aguggaguaa aaauggaauc aaugguaacu uaucaaauac ugucaauuua uucaacagug 1620

gcgaguuccc uagcauuggc aaucauggug gcuggucuau cuuuauggau gugcuccaau 1680

ggaucguuac aaugcagaau uugcauuuga 1710

<210> 45999
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI174803

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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcucaaga cauacuggag aagacacaca acgggaagcu cugcaaccua 180

gaugggguga agccucuaau uuugaaagac uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuucu caauguguca gaauggucuu acauagugga gaaggccagu 300

ccagccaaug gccucuguua cccaggggau uucaaugacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccaucu uaagaaaauu aagaucaucc ccaaaaguua uugguccaau 420

caugaagccu caucaggggu gagcgcagca uguuccuauc ugggagagcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaau aauacauacc caccaauaaa ggugaacuac 540

accaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc caaugaugag 600

aaagagcaga uaaggaucua ucaaaaccca aacaccucua uuucaguugg aacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaccca aagugaacgg gcaaagugga 720

cgaauggagu ucuucuggac aauuuuaaag ccgaaugauu cuaucaauuu cgauagcaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauugcca agaaagggga cucagugauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aaugggggcg 900

auaaauucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccucgcg acuggacuca gaaaugcccc ccaaacagag 1020

acccgaggac uauuuggagc cauagcaggg uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu augguacca ccauagcaau gagcagggga guggauacgc ugcagacaaa 1140

gaauccacuc aaaaggcaau agauggaauc accaauaagg ucaacucgau cauugacaaa 1200

augaacacuc aguuugagau cguuggaagg gaauuuaaua acuuagaaag gagaauagaa 1260

aauuuaaaca agaagaugga ggacggauuc cuagaugucu ggacuuauaa cgcugaacuu 1320

cugguucuca uggagaauga gagaacucua gacuuucaug acucaaaugu caagaaccuu 1380

uacgaaaagg uccgacuaca gcuuagggau aaugcaaagg agcuggguaa cgguuguuuu 1440

gaguucuacc acaaauguga uaaugaaugu auggaaagug uaagaaacgg aacguaugac 1500

uacccgcagu auucagaaga agcaagacua agcagagagg aaauaagugg aguaaaaaug 1560

gaaucaaugg uaacuuauca aauacuguca auuuauucaa caguggcgag uucccuagca 1620

uuggcaauca ugguggcugg ucuaucuuua uggaugugcu ccaauggauc guuacaaugc 1680

agaauuugca uuuga 1695

<210> 46000
<211> 1704
<212> RNA
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<220>
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acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

aauggaguga aaccucugau uuuaaaagau uguaguguag caggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugcca gaaugguguu acauaguaga gaaggccaau 300

ccagccaaug gccucuguua cccagggaau uucaacgauu augaggaauu gaaacaccua 360

uugagcagga uaaaccauuu ugagaaaaua cggaucaucc ccaaagauuc uuggucagau 420

caugaagccu cacugggggu gagugcagca uguccauacc agggaaauuc cuccuucuuc 480

agaaaugugg uguggcuuau caaaaaggac aauacauacc caacaauaaa gaaaagcuac 540

aauaauacca accaagaaga ucucuugaua cugugggggа uucaucaccc uaaugaugaa 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaauaaaugg gcaaaguggc 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaac 780

ggaaauuuca uugcuccaga guaugcauac aaaauuguca agaaaggaga cucaacaauu 840

augaaaagug aaguggaaua ugguaauugc aacaccaggu gucagacucc uauaggggcg 900

auaaacucua guaugccauu ccacaacaua cauccccuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucaaagagag 1020

agaagaagaa aaagaggauu guuuggagcu auagcagggu uuauagaggg aggauggcag 1080

gggaugguag augguuggua uggguaccac cacagcaacg agcaggggag uggguacgcu 1140

gcagacaaag aaucuacuca aaaggcaaua gacggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guaggaaggg aguuuaauaa cuuagagagg 1260

agaauagaga auuugaacaa gaagauggaa gacggauucc uagaugucug gacuuauaau 1320

gcagaacuuc ugguucucau ggaaaaugag agaacucugg acuuccauga cucaaauguc 1380

aggaaucuuu acgacaaggu cagacuacag cuuaaggaca augcaaaaga gcuggguaac 1440

gguuguuucg aguucuacca caaauguaau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa gaagagaaga aauaagugga 1560

guaaaguugg aaucaauagg aauuuaccaa auauugucaa uuuauucaac aguggcaagu 1620

uccuuaguac uggcaaucau gauggcuggu cuaucuuuau ggauguguuc caacgggucg 1680

uuacagugca gaauuugcau uuaa 1704

<210> 46001
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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auugguuacc augcaaacaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaaugguсuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaau aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggga uucaucauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

agaauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

auaaaaagug aaguggaaua ugguaacugc aacacaaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugagugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 46002
<211> 1695
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI827075

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auugguuauc augcaaauaa cucgacagag cagguugaca caauaaugga aaagaacguu 120

acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucggaaau 240

ccauugugug acgaauucac caaugugcca gaauggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu gaaacaccua 360

uugagcagga uaaaccauuu ugagaaaaua cagaucaucc ccaaagauuc uuggucagau 420

caugaagccu cauuggggu gagugcagca uguucauacc agggaaauuc cuccuucuuc 480

agaaaugugg uguggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaggcuac 540

aauaauacca accgagaaga ucucuugaua cugugggga uccaccaucc uaaugaugag 600

gcagagcaga caaggcucua ccaaaaccca acuaccuaua uuuccauugg gacuucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucca aaauaaacgg gcaaagcggc 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugacg caauccacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaagggaga cuccacaauc 840

augagaagug aaguggaaua ugguaacugc aacaccaggu gucagacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

uaugugaaau caaacaaauu aguccuugca acugggcuca gaaauagucc ucaacgagag 1020

acgcgaggac uguuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu augggguacca ccacagcaau gaacagggga gugguuacgc ugcagacaaa 1140

gaaucuacuc aaaaggcgau agacggaguc accaauaagg ucaauucgau cauugacaaa 1200

augaacacuc aguuugaggc uguaggaagg gaauuuaaua acuuagagag gagaauagaa 1260

aauuuaaaca agaagaugga agacggauuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cugguucuca uggagaauga gagaacucua gacuuccaug acucaaaugu caagaaccuu 1380

uacgauaagg uccgacuaca gcuuaaggau aaugcaaaag agcugggaaa cgguuguuuc 1440

gaguucuauc acaaauguaa uaaugaaugu auggaaagug uaagaaacgg gacguaugac 1500

uacccgcagu auucagaaga agcaagauua aaaagagagg aaauaagugg aguaaaacug 1560

gaaucaauag gaaucuacca aauacuguca auuuauucaa caguggcgag uucccuagug 1620

cuggcaauca ugauggcugg ucuaucuuua uggauguguu ccaacggguc guuacagugc 1680

agaauuugca uuuaa 1695

<210> 46003
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccaggggau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

uaugaagccu caucaggagu gagcucagca uguccauacc agggaagauc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaagaac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagagga ucuuuuggua cugugggga uucaccaucc gaaugaugcg 600

gcagagcaga uaaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucua agguaaaugg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ucgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaaau gucaaacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

agaagaagaa gaaagagagg acuauuugga gcuauagcag gguuuauaga gggaggaugg 1080

cagggaaugg uagaugguug guaugguac caccauagca acgagcaggg gagugguac 1140

gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauuaaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

aaugcugaac uucugguucu cauggaaaau gagagaacuc uagacuuuca ugacucaaau 1380

gucaagaacc uuuacgacaa ggucagacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaauuuac caaauacugu caauuuauuc aacaguggcg 1620

agcucccuag cacuggcaau caugguggcu ggucuauuuu uauggaugug cuccaaugga 1680

ucguuacaau gcagaauuug cauuuaa 1707

<210> 46004
<211> 1692
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI827077

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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcaaucua 180

gauggaguga agccucucau uuugagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugcg augaauuccu caaugugccg gaaugguсuu acauagugga gaaaaucaau 300

ccagccaaug accucuguua uccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucauuc ccaaagauuc uuggucagau 420

caugaagccu cgggagugag cucagcaugc ccauaccaag gaagauccuc cuuuuuuaga 480

aauguuguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagaa aaguuacaau 540

aauacuaacc aagaagaucu uuugguacua ugggggauuc accauccaaa ugaugcugca 600

gagcagacaa ggcuuuauca aaacccaacu accuauaucu ccguugggac aucaacacua 660

aaccagagau ugguacccaa aauagcuacu agaucuaagg uaaacgggca aaguggaagg 720

auggaguucu uuuggacaau uuuaaaaucg aaugaugcaa uaaacuuuga gagcaaugga 780

aacuucauug cuccagaaaa ugcauacaaa auugucaaga aaggagauuc aacaauuaug 840

aaaagugagu uggaauauag uaacugcaac accaaguguc agacuccaau aggggcgaua 900

aacuccagua ugccauucca caacauccac ccucucacca ucggggaaug ccccaaauau 960

gugaaaucaa acagauuagu ccuugcuacu gggcucagga auagcccuca acgagagacg 1020

cgaggacuau ucggagccau agcaggcuuu auagagggag gauggcaggg aaugguagau 1080

gguugguaug gguaccacca uagcaacgag caggggagug gguacgcugc agacaaagaa 1140

uccacucaaa gggcuauaga uggagucacc aauaagguca auucgaucau ugacaaaaug 1200

aacacucagu uugaggcugu uggaagggaa uuuaauaacu uagaaaggag aauagaaaau 1260

uuaaacaaga agauggaaga cggauuccua gaugucugga cuuauaaugc ugaacuucug 1320

guucucaugg aaaaugagag aacucuagac uuucaugacu caaaugucaa gaaucuuuau 1380

gacaaggucc gacuacagcu uagggauaau gcaaaggagc uugguaacgg uuguuucgag 1440

uucuaucaca gaugugauaa ugaauguaug gaaaguguaa gaaacggaac guaugacuac 1500

ccucaauauu cagaagaagc aagauuaaaa agagaggaaa uaaguggagu aaaauuggag 1560

ucaauaggaa cuuaccaaau acugucaauu uauucaacag uggcgagcuc ccuagcacug 1620

gcaaucaugg uggcuggucu aucuuuaugg augugcucca auggaucgcu acaaugcaga 1680

auuugcauuu aa 1692

<210> 46005
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
hemagglutinin__InfluenzaA__EPI594523

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guuggcuacc augcaaacaa cucgacagag cggguugaca caauaaugga aaagaacguu 120

acuguuacac augcucaaga cauacuggag aagacacaca acgggaagcu cugcaaccuc 180

aauggaguga agccuuuaau uuuggaagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acaaauuucu caauguguca gaauggucuu auauagugga gaaggccggu 300

ccagccaaug gccuuuguua cccaggggau uucaaugauu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugaaaaaauu gagaucaucc ccaaaaauca uugguccaau 420

cauaauaccu caggggugag cucagcuugu uccuaucugg agaaucccuc uuuuuucaga 480

aauguaguau ggcuuaccaa aaagaacaau acauacccaa caauaaaagu gaacuacacc 540

aaugccaacc aaaaagaucu uuugguacug uggggaaucc accaucccaa uaaugaggca 600

gagcagaaaa ugaucuauca aaacucaaac acuuauguuu ccguuggaac aucaacauua 660

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aauucuagua ugccauucca caacauacau ccucucacca ucggggaaug ccccaaauau 960

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gcagacaagg aauccacuca aaaagcagua gauggaauca ccaauaagau caacucgauc 1200

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agaauugaaa auuuaaauaa aaagauggag gacggauucc uagaugucug gacuuauaac 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga cucaaauguc 1380

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gguugcuucg aguucuacca caaaugugau aacgaaugua uggaaagugu aaaaaacggg 1500

acauaugacu acccgcaaua uucagaagaa gcaagacuaa acagagagga aauaagugga 1560

guaaaauugg aaucaacugu aacuuaucaa auacugucaa uuuauucaac aguggcgagu 1620

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<210> 46006
<211> 1707
<212> RNA
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acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

aauggaguga agccucucau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccuaugugug acgaauucau caaugugccg gaaugguсuu acauagugga gaaggccagu 300

ccagccaaug accucuguua cccaggggau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa caaaccauuu ugagaagauu cagaucaucc ccccaaguuc uugguccaau 420

caugaugccu caucaggggu gagcucagca uguccauacc augggagguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac agugcauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuagua cugugggggа uucaccaucc uaaugaugcg 600

gcagagcaga caaagcuaua ucaaaaccca accacuuaca uuuccguugg aacaucaaca 660

cugaaccaga gauugguucc agaaauagcu acuagaccca aaguaaacgg gcaaagugga 720

agaauggagu ucuucuggac aauuuuaaag ccgaaugaug ccaucaauuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

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auaaacucua guaugccauu ccacaacaua cacccccuca ccaucgggga augccccaaa 960

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aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa uaacuuggaa 1260

aggaggauag agaauuuaaa caagcagaug gaagacggau uccuagaugu cuggacuuau 1320

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ggaacguaug acuacccgca guauucagaa gaagcaagac uaaacagaga ggaaauaagu 1560

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acuguuacac augcccaaga cauacuggaa aagacacaca augggaagcu cugcgaucua 180

aauggaguga agccucucau uuugagagau uguaguguag cuggauggcu ccucggaaac 240

ccuaugugug acgaauucau caaugugccg gaaugguguu acauagugga gaaggccagu 300

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caugaugccu caucaggggu gagcucagca uguccauacc augggagguc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac agugcauacc caacaauaaa gaggagcuac 540

aauaauacca accaagaaga ucuuuuagua cugugggggga uucaccaucc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accacuuaca uuuccguugg aacaucaaca 660

cugaaccaga gauugguucc agaaauagcu acuagaccca aaguaaacgg gcaaagugga 720

agaauggagu ucuucuggac aauuuuaaag ccgaaugaug ccaucaauuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

augaaaagug aauuggaaua ugguaacugc aacaccaagu gucaaacucc aauggggcg 900

auaaacucua guaugccauu ccacaacaua cacccccuca ccaucgggga augccccaaa 960

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cagggaaugg uagaugguug guauggguac caccauagca augagcaggg gaguggauac 1140

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aucauugaca aaaugaacac ucaguuugag gccguuggaa gggaauuuaa uaacuuggaa 1260

aggaggauag agaauuuaaa caagcagaug gaagacggau uccuagaugu cuggacuuau 1320

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aaugguuguu ucgaguucua ucacaaaugu gauaaugaau guauggaaag uguaaaaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagac uaaacagaga ggaaauaagu 1560

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<212> RNA
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acuguuacac augcccaaga cauacuggaa aagacacaca acgguaagcu cugcgaucua 180

aauggaguga agccucugau uuuaaaagau uguaguguag caggauggcu ccucggaaau 240

ccaaugugug acgaauucau caaugugcca gaauggucuu acauaguaga gaaggccaau 300

ccagccaaug accucuguua cccagggaau uucaacgauu augaagaauu gaaacaccua 360

uugagcagga uaaaccauuu ugagaaaaua cagaucaucc ccaaaaauuc uuggucagau 420

caugaagccu cguuggggu gagugcagca uguccauacc agggaaaauc cuccuucuuc 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gaaaggcuac 540

aauaauacca accaagaaga ucucuuggua cugugggga uucaccaucc uaaugaugag 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuaggucca aaauaaacgg gcaaaguggc 720

aggauagauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucaacaauu 840

augaaaagug aaguggaaua ugguaacugc aacaccaggu gucagacucc aauaggggcg 900

auaaacucca guaugccauu ccacaacaua cacccucuca ccaucggaga auguccccaaa 960

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acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauucau caauguaccg gaaugucuu acauagugga gaaggccaau 300

ccaaccaaug accucuguua cccagggagu uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu caaaucaucc ccaaaaguuc uugguccgau 420

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agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaaaagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggaa uucaccaucc uaaugaugcg 600

gcagagcaga caaggcuaua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccuaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

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auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

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ggaacguaca acuauccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

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<211> 1707
<212> RNA
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauucau caauguaccg gaaugguguu acauagugga gaaggccaau 300

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agaaaugugg uauggcuuau caaaaagaac aguacauacc caacaauaaa gaaaagcuac 540

aauaauacca accaagaaga ucuuuuggua cugugggaa uucaccaucc uaaugaugcg 600

gcagagcaga caaugcuaua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccuaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauucau caauguaccg gaauggucuu acauagugga gaaggccaau 300

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aauaauacca accaagaaga ucuuuuggua cugugggaa uucaccaucc uaaugaugcg 600

gcagagcaga caaggcuaua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggagu ucuucuggac aauuuuaaaa ccuaaugaug caaucaacuu cgagaguaau 780

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<220>
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gauggaguga agccucuaau uuuaaaagau ugcaguguag cuggauggcu ccucgggaau 240

ccaaugugug acgaauucau caauguacca gaguggucuu acauagugga gaaggccaau 300

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gcagagcaga caaugcuaua ucaaaaccca accaccuaua uuuccauugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

agaauggagu uuuuuuggac aauuuuaaaa ccaaaugaug caaucaacuu cgagaguaau 780

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<210> 46013
<211> 1707
<212> RNA
<213> Artificial Sequence

<220>
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<400> 46013

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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caauguaccg gaaugguсuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

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aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

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aggauggagu ucuuuuggac aauuuuaaaa ccgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

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aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

aggagaauag aaaauuuaaa caagaagaug gaagacggau uccuagaugu cuggacuuau 1320

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gucaagaacc uuuacgacaa gguccgacua cagcuuaggg auaaugcaaa ggagcuuggu 1440

aacgguuguu uugaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaaugacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu cagcaggggu gaguucagca uguccauacc agggaauguc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua uuugggggga uucaccaucc aaaugaugcg 600

gcagagcaga caaagcucua ucaaaacuca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucua agguaaacgg gcaaagugga 720

aggauagagu ucuuuuggac aauuuuaaaa ccgaaugaua caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

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auaaacucua guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

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ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

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caugaagccu cagcaggggu gagcucagca uguccauacc agggaagguc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua uuugggggga uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaacuca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucua agguaaacgg gcaaagugga 720

aggauagagu ucuuuuggac aauuuuaaaa ccgaaugaua caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aguuggaaua ugguaacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caagcagauu aguccuugcu acugggcuca gaaauagccc ucaaggagag 1020

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gcugcagaca aagaauccac ucaaaaggca auagauggag ucaccaauaa ggucaacucg 1200

aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

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aacgguuguu ucgaguucua ucacagaugu gauaaugaau guauggaaag uguaagaaac 1500

ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

ggaguaaaau uggaaucaau aggaacuuac caaauacugu caauuuauuc aacaguggcg 1620

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acuguuacac acgcccaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaaugucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uuggucagau 420

caugaagccu cagcaggggu gagcucagca uguccauacc agggaagguc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua uuguggggga uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca acuaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcc acuagaucua agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ccgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

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auaaacucua guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

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aucauugaca aaaugaacac ucaguuugag gcuguuggaa gggaauuuaa uaacuuagaa 1260

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ggaacguaug acuacccgca guauucagaa gaagcaagau uaaaaagaga ggaaauaagu 1560

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<212> RNA
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acuguuacac acgcgcaaga cauacuggaa aagacacaca acgggaaacu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucgggaac 240

ccaaugugug acgaauuccu caaugugccg gaauggucuu acauagugga gaagaucaau 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

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caugaagccu caucaggggu gagcucagca uguccauacc agggaagguc cuccuuuuuu 480

agaaaugugg uauggcuuau caaaaaggac aaugcauacc caacaauaaa gagaaguuac 540

aauaauacca accaagaaga ucuuuuggua cugugggggа uucaccaucc aaaugaugcg 600

gcagagcaga caaggcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gacugguacc aaaaauagcu acuagaucca agguaaacgg gcaaagugga 720

aggauggagu ucuuuuggac aauuuuaaaa ccgaaugaug caauaaacuu ugagaguaau 780

ggaaauuuca uugcuccaga aaaugcauac aaaauuguca agaaagggga cucaacaauu 840

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auaaacucua guaugccauu ccacaacauc cacccucuca ccaucgggga augccccaaa 960

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acuagaggau uauuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu augguacca ccauagcaac gagcagggga gugguacgc ugcagacaaa 1140

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aauuuaaaca agaagaugga agacggauuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cugguucuca uggaaaauga gagaacucua gacuuucaug acucaaaugu caagaaccuu 1380

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uacccgcagu auucagaaga agcaagauua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaacuuacca aauacuguca auuuauucaa caguggcgag cucccuagca 1620

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<212> RNA
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaggcu cugcgaucug 180

aauggaguga aaccucugau uuugaaggau uguaguguag cuggauggcu ucuuggaaac 240

ccaaugugcg acgaguucau cagagugccg gaaugguguu acauagugga gagggcuaac 300

ccagccaaug accucuguua cccagggaac cucaaugacu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu cugaucaucc ccaagaguuc uuggcccaau 420

cauacaucau caggggugag cgcagcaugu ccauaccagg gaacgcccuc cuuuuucaga 480

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aaccagagau uggugccaaa aauagcuacu agaucccaag uaaacgggca acguggaaga 720

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aauuuuauug cuccagaaua ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaaa uggaauaugg ccacugcaac accaaauguc aaacuccaau aggggcgaua 900

aacucuagua ugccauucca caauauacau ccucucacua ucggggagug ccccaaauac 960

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uaugacuacc cccaguauuc agaagaagca agauuaaaaa gggaagaaau aagcggagug 1560

aaauuggaau caauaggaac uuaccaaaua cugucaauuu auucaacagu ggcgaguucc 1620

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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaggcu cugcgaucug 180

aauggaguga aaccucugau uuuaaaggau uguaguguag cuggauggcu ucuuggaaac 240

ccaaugugcg acgaguucau cagagugccg gaaugguguu acauagugga gagggcuaac 300

ccagccaaug accucuguua cccagggaac cucaaugacu augaagaacu gaaacaccua 360

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aauaauacca auagggaaga ucuuuugaua cuaugggga uucaucauuc caacaaugca 600

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uuaaaccaga gauuggugcc aaaaauagcu acuagauccc aaguaaacgg gcaacgugga 720

agaauggauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaggcu cugcgaucug 180

aauggaguga aaccucugau uuuaaaggau uguaguguag cuggauggcu ucuuggaaac 240

ccaaugugcg acgaguucau cagagugccg gaauggucuu acauagugga gagggcuaac 300

ccagccaaug accucuguua cccagggaac cucaaugacu augaagaacu gaaacaccua 360

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caugaaacau cauuaggggu gagcgcagca uguccauacc agggagugcc cuccuuuuuc 480

agaaaugugg uauggcuuac caagaagaac gaugcauacc caacaauaaa gaugagcuac 540

aauaauacca auagggaaga ucuuuugaua cugugggggа uucaucauuc caacaaugca 600

gcagagcaga caaaucucua uaaaaaccca accaccuaug uuuccguugg gacaucaaca 660

uuaaaccaga gauuggugcc aaaaauagcu acuagauccc aaguaaacgg gcaacgugga 720

agaauggauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu cgagaguaau 780

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acuguuacac augcccaaga cauacuggaa aagacacaca auggaaagcu cugcgauuua 180

aauggaguga agccucugau uuuaaaggau uguaguguag cuggauggcu ucucggaaac 240

ccaaugugcg acgaauucau cagggugccg gaauggucuu acauaguaga aagggcuaac 300

ccagccaaug accucuguua cccagggaac cucaaugauu augaagaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaauu cugaucaucc ccaagaguuc uuggaccaau 420

caugaaacau cauuaggggu gagcgcagca ugcccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac gaugcauacc ccacaauaaa aauaagcuac 540

aauaauacca aucaggaaga ucuguugaua cugugggggg uucaccauuc caacaaugca 600

gcagagcaga cgaaccucua uaaaaaccca accaccuaua uuuccguugg gacaucaaca 660

uuaaaccaga gauugguacc aaaaauagcu acuagauccc aagugaacgg acagcgugga 720

agaauggauu ucuucuggac aauucuaaaa ccgaaugaug caauccacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucaacaauu 840

augaaaagug aaauggaaua uggccacugc aacaccaaau gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ucacaauaua cacccucuca ccaucgggga augccccaaa 960

uacgugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

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ggaaugguag auggcuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

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agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc uaguucucau ggaaaaugag agaacucuag auuuccauga cucaaauguc 1380

aagaaccuuu acgauaaagu ccgacuacag cuuagggaca augcaaagga acuggguaau 1440

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acauaugacu acccgcaaua uucagaagaa gcaagauuaa aaagagaaga aauaagcgga 1560

gugaaauuag agucaauagg aacuuaccaa auacugucaa uuuauucaac aguggcgagu 1620

ucccuagcac uggcaaucau aguggcuggu uuaucuuuau ggaugugcuc caaugggucg 1680

uugcagugca gaauuugcau uuaa 1704

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acuguuacac augcccaaga cauacuggaa aagacacaca acgggagacu cugcgaucug 180

aauggaguga aaccucugau uuuaaaggau uguaguguag cuggauggcu ccuuggaaac 240

ccaaugugug acgaguucau cagagugccg gaaugguuu acauagugga gagggcuaau 300

ccagccaaug accucuguua uccagggaac cucaaugacu augaggaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu cugaucaucc ccaagaguuc uuggcccaau 420

cauacaucau caggggugag ugcagcaugu ccauaccagg gaaugcccuc cuuuuucaga 480

aauguggguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagau gagcuacaau 540

aauaccuaua gggaagaucu uuugauacug ugggggauuc aucauuccaa caaugcagca 600

gagcagacaa aucucuauaa aaacccaacc accuauguuu ccguugggac aucaacauua 660

aaccagagau uggagccaaa aauagcuacu agaucccaag uaaacgggca acguggaaga 720

auggauuucu ucuggaccau uuuaaaaccg aaugaugcaa uccacuucga gaguaaugga 780

aauuuuauug cuccagaaua ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaaa uggaauaugg gcacugcaac accaaauguc aaacuccaau aggggcgaua 900

aacucuagua ugccauucca caauauacac ccucucacua ucggggagug ccccaaauac 960

gugaaaucga acaaauuagu ccuugcgacu gggcucagaa auaguccucu aagagaaaga 1020

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augguagaug guugguaugg guaccaccau agcaaugaac aggggagugg guacgcugca 1140

gacagagaau ccacccaaaa ggcaauagau ggaguuacca auaaggucaa cucgauaaua 1200

gacaaaauga acacucaauu ugaggccguu ggaagagaau uuaauaacuu agaacggaga 1260

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gaacuuuuag uucucaugga aaaugagaga acucuagauu uccaugacuc aaaugucaag 1380

aaccuuuaug acaagguccg acuacagcuu agggauaaug caaaggagcu ggguaauggu 1440

uguuucgagu ucuaucacaa augugauaau gaauguaugg aaaguguaag aaaugggacg 1500

uaugacuacc cccaguauuc agaagaagca agguuaaaaa gggaagaaau aagcggggug 1560

aaauuggaau caauaggaac uuaccaaaua cugucaauuu auucaacagu ggcgaguucc 1620

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acuguuacac augcccaaga cauacuggaa aagacacaca acgggagacu cugcgaucug 180

aauggaguga aaccucugau uuuaaaggau uguaguguag cuggauggcu ccuuggaaac 240

ccaaugugug acgaguucau cagagugccg gaaugguсuu acauagugga gagggcuaau 300

ccagccaaug accucuguua uccagggaac cucaaugacu augaggaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaagacu uugaucaucc ccaagaguuc uuggcccaau 420

cauacaucau caggggugag ugcagcaugu ccauaccagg gaaugcccuc cuuuuucaga 480

aauguggguau ggcuuaccaa aaagaacgau gcauacccaa caauaaagau gagcuacaau 540

aauaccuaua gggaagaucu uuugauacug ugggggauuc aucauuccaa caaugcagca 600

gagcagacaa aucucuauaa aaacccaacc accuauguuu ccguugggac aucaacauua 660

aaccagagau uggagccaaa aauagcuacu agaucccaag uaaacgggca acguggaaga 720

auggauuucu ucuggaccau uuuaaaaccg aaugaugcaa uccacuucga gaguaaugga 780

aauuuuauug cuccagaaua ugcauacaaa auugucaaga aaggggacuc aacaauuaug 840

aaaagugaaa uggaauaugg gcacugcaac accaaauguc aaacuccaau aggggcgaua 900

aacucuagua ugccauucca caauauacac ccucucacua ucggggagug ccccaaauac 960

gugaaaucga acaaauuagu ccuugcgacu gggcucagaa auaguccucu aagagaaaga 1020

agaagaaaaa gaggacuauu uggagcuaua gcaggguuua uagagggagg auggcaagga 1080

augguagaug guugguaugg guaccaccau agcaaugaac aggggagugg guacgcugca 1140

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gacaaaauga acacucaauu ugaggccguu ggaagagaau uuaauaacuu agaacggaga 1260

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gaacuuuuag uucucaugga aaaugagaga acucuagauu uccaugacuc aaaugucaag 1380

aaccuuuaug acaagguccg acuacagcuu agggauaaug caaaggagcu gggguaauggu 1440

uguuucgagu ucuaucacaa augugauaau gaauguaugg aaaguguaag aaaugggacg 1500

uaugacuacc cccaguauuc agaagaagca agguuaaaaa gggaagaaau aagcggggug 1560

aaauuggaau caauaggaac uuaccaaaua cugucaauuu auucaacagu ggcgaguucc 1620

cuagcacugg caaucauugu ggcuggucua ucuuuaugga ugugcuccaa ugggucguua 1680

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<211> 1704
<212> RNA
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<400> 46024

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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucuu 180

aauggaguga agccccugau ucuaaaggau uguagcguag cuggguggcu ccuuggaaau 240

ccaaugugcg acgaguucau caggguaccg gaauggucuu acaucgugga gagggcuaac 300

ccagccaacg accuauguua cccagggacc cucaaugacu augaggaacu gaaacaccua 360

uugagcagaa uaaaucauuu ugagaaaacu cugaucaucc ccaggaguuc uuggcccaau 420

caugaaacau cauuaggggu gagcgcagca uguccauacc agggagcauc cucauuuuuc 480

agaaaugugg uauggcucau caaaaagaac gaugcauacc cgacaauaaa gauaagcuac 540

aauaauacca aucgggaaga ucuuuugaua cugugggggа uucaucauuc caacaaugca 600

gcagagcaga caaaucucua uaaaaaccca gacacuuaug uuuccguugg gacaucaaca 660

uuaaaccaga gauuggugcc aaaaauagcu acuagauccc aaguaaacgg gcagagugga 720

agaauggauu ucuucuggac aauuuuaaaa ccgaaugaug caauccacuu ugagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggggа cucaacaauu 840

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auaaacucua gcaugccauu ccacaauaua cacccucuca ccaucgggga augccccaaa 960

uacgugaagu caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

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ggaaugguag acgguuggua uggguaucau cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccaccca aaaggcaaua gauggaguua ccaauaaggu caacucaauc 1200

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acguaugacu acccuaagua uucagaagaa gcaauauuaa aaagagaaga aauaagcgga 1560

gugaaauuag aaucaauagg aacuuaccag auacugucaa uuuauucaac aguggcgagu 1620

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acugucacac auucaguuga auuacuagag aaucagaaag aaaagagguu cugcaaaauu 180

augaacaagg ccccucucga ccuaaaggau ugcaccauag aagguuggau acuggggaau 240

ccuaagugcg acuuauugcu uggugaucaa aguuggucau acauagugga aagaccuaau 300

gcucaaaaug ggauuuguua cccaggaguu cugaaugaau uagaagaacu gaaggcauuu 360

auaggaucug gagaaagagu agagagauuu gagauguuuc ccaaaagcac augggcagga 420

guagauacua guagaggggu gacaaacgcu uguccaucuu auacuauuga uucaucuuuc 480

uacagaaacc uuguauggau aguaaaaacu gauucagcaa cauauccagu aauuaagggg 540

acguacaaca auacuggaac ccagccaauc cucuauuucu gggguguuca ucauccucuu 600

gacaccacug ugcaggauaa uuuguauggg ucuggugaua aauacguuag aaugggaacu 660

gaaagcauga auuuugccaa gaguccggaa auugcagcaa gaccugcugu gaacggccaa 720

aggagcagaa uugauuauua cuggucuguc uugagaccag gggaaaccuu aaauguggag 780

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accuaugacu aucccaaaua ucagaaggag aguaaauuaa acagacaggg gauagaaucu 1560

gugaagcuag agaaucuugg uguguaucaa auucuugcca ucuauaguac gguaucgagc 1620

agucuagugu ugguagggcu gaucauggca auaggucuuu ggauguguuc aaaugguuca 1680

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<211> 1704
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augaacaagg ccccucucga ccuaaaggau ugcaccauag aagguuggau acuggggaau 240

ccuaagugcg acuuauugcu uggugaucaa aguuggucau acauagugga aagaccuaau 300

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auaggaucug gagaaagagu agagagauuu gagauguuuc ccaaaagcac augggcagga 420

guagauacaa guagaggggu gacaaacgcu uguccaucuu auacuauuga uucaucuuuc 480

uacagaaacc uuguauggau aguaaaaacu gauucagcaa cauauccagu aauuaagggg 540

acguacaaca auacuggaac ccagccaauc cucuauuucu gggguguuca ucauccucuu 600

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aggagcagaa uugauuauua cuggucuguc uugagaccag gggaaaccuu aaauguggag 780

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accuaugacu aucccaaaua ucagaaggag aguaaauuaa acagacaggg gauagaaucu 1560

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<212> RNA
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ggaguagaag uugucaaugc aacagaaaca guggagcgga caaacauccc caaaauuugc 180

ucaaaaggga aaagaaccgu ugaucuuggc caaugcggac uacuggggac cauuaccgga 240

ccaccucaau gugaccaauu ucuagaauuu ucagcugauu uaauaauuga gaggcgggac 300

ggaaaugaug uuuguuaccc ggggaaauuu gugaauggag aggcauugcg gcaaauccuc 360

agaaaaucag gugggauuaa caaagaaaca augggauuca cauacagugg aauaagaacc 420

aauggaacaa cuagugcgug uagaagauca ggaucuucau ucuaugcaga aaugaagugg 480

cuccugucag auacagacaa ugcugcuuuc ccacaaauga cgaaaucaua caaaaacaca 540

aggagagaac cagcucugau agucugggga auccaucauu caggaucaac caccgagcag 600

accaaacuau auggaagugg aaauaaacug guaacagucg gaaguuccaa auaucagcag 660

ucuuuugugc cgaguccagg aacacgacca caaguaaaug gccaguccgg acgaauugau 720

uuucacuggu ugauacugga uuccaaugac acaguuacuu uuaguuucaa uggggcuuuc 780

auagcuccag aucgugcuag cuucuugaag ggaaagucca ugggaaucca aagcgaugug 840

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cacagcaaau acagagaaga agcaaugcaa aauagaauac aaauugaccc agucaaauug 1560

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<210> 46028

<211> 1692
<212> RNA
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hemagglutinin__InfluenzaA__AGB51388

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ggaguagaag uugucaaugc aacagaaaca guggagcgga caaacauccc caaaauuugc 180

ucaaaaggga aaagaaccgu ugaucuuggc caaugcggac uacuggggac cauuaccgga 240

ccaccucaau gugaccaauu ucuagaauuu ucagcugauu uaauaaucga gaggcgggac 300

ggaaaugaug uuuguuaccc ggggaaauuu gugaauggag aggcauugcg gcaaauccuc 360

agaaaaucag gugggauuaa caaagaaaca augggauuca cauacagugg aauaagaacc 420

aauggaacaa cuagugcaug uagaagauca ggaucuucau ucuaugcaga aaugaagugg 480

cuccugucag auacagacaa ugcugcuuuc ccacaaauga cgaaaucaua caaaaacaca 540

aggagagaac cagcucugau agucugggga auccaucauu caggaucaac caccgagcag 600

accaaacuau auggaagugg aaauaaacug guaacagucg gaaguuccaa auaucagcag 660

ucuuuugugc cgaauccaga aacacgacca caaguaaaug gccaguccgg acgaauugau 720

uuucacuggu ugauacugga uuccaaugac acaguuacuu uuaguuucaa uggggcuuuc 780

auagcuccag aucgugcuag cuucuugaag ggaaagucca ugggaaucca aagcgaugug 840

cagguugaug ccaauugcga aggggaaugc uaccacagug gagggaccau aacaagcagu 900

uugcccuucc aaaacaucaa cagcagggca guuggcaagu guccaagaua uguaaaacag 960

gaaagucuau uauuggcaac agggaugaag aauguucccg aacuucccaa aaaaagaaga 1020

aaaagaggcc uguuuggcgc cauagcgggg uuuauugaaa augguuggga aggucugguc 1080

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aaaagcaccc agucggcaau ugaucagaua accggaaaau uaaauagacu cauugagaaa 1200

acuaaucagc aauuugagcu aauagauaau gaauucacug agguagaaaa gcagacuggc 1260

aauguaauua acuggaccag agacuccauc acagaaguau ggucuuacaa ugcugaacuu 1320

cucguggcaa uggaaaauca gcacacuauu gaucuagcug auucagagau gaacaaauug 1380

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gagauuuucc acaaauguga ugaugauugu auggcuagua uaaggaacaa uacuuaugau 1500

cacagcaaau acagagaaga agcaaugcaa aauagaauac aaauugaccc agucaaauug 1560

agugguggcu acaaagaugu gauacuuugg uuuagcuucg gggcgucaug cuuuuuacuu 1620

cuugccauug caaugggccu ugucuucaua ugugugaaga auggaaacau gcggugcacu 1680

auuuguauau aa 1692

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 46030
<211> 1704
<212> RNA
<213> Artificial Sequence

<220>
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acuguuacac augcccaaga cauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucugau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acgaauucau caaugugccg gaauggucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau uucaacgacu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagaucaucc ccaaaaguuc uugguccgau 420

caugaagccu caucaggggu gagcucagca uguccauacc agggaacgcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gagaagcuac 540

aauaauacca accaggaaga ucuuuugaua cugugggga uucaucauuc uaaugaugcg 600

gcagagcaga caaagcucua ucaaaaccca accaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu ucuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaau 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaagggga cucagcaauu 840

guuaaaagug aaguggaaua ugguaacugc aacacaaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagucc ucuaagagaa 1020

agaagaagaa aaagaggacu auuuggagcu auagcagggu uuauagaggg aggauggcag 1080

ggaaugguag augguuggua uggguaccac cauagcaaug agcaggggag uggguacgcu 1140

gcagacaaag aauccacuca aaaggcaaua gauggaguca ccaauaaggu caacucgauc 1200

auugacaaaa ugaacacuca guuugaggcc guuggaaggg aauuuaauaa cuuagaaagg 1260

agaauagaga auuuaaacaa gaaaauggaa gacggauucc uagaugucug gacuuauaau 1320

gcugaacuuc ugguucucau ggaaaaugag agaacucuag acuuccauga uucaaauguc 1380

aagaaccuuu acgacaaggu ccgacuacag cuuagggaua augcaaagga gcuggguaac 1440

gguuguuucg aguucuauca caaaugugau aaugaaugua uggaaagugu aagaaacgga 1500

acguaugacu acccgcagua uucagaagaa gcaagauuaa aaagagagga aauaagugga 1560

guaaaauugg aaucaauagg aacuuaccaa auacugucaa uuuauucaac aguugcgagu 1620

ucucuagcac uggcaaucau gguggcuggu cuaucuuugu ggaugugcuc caaugggucg 1680

uuacaaugca gaauuugcau uuaa 1704

<210> 46031
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggaacaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugguagca 1320

auggagaacc agcauacaau ugaucuggcu gauucagaaa uggacaaacu guacgaacga 1380

gugaaaagac agcugagaga gaaugcugaa gaagauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 46032
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI740738

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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc uaggaucugc 180

ucaaaaggga aacggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucggccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga uaaggaaaca augggguuca cauacagugg aauaagaacu 420

aauggaguaa ccagugcaug uaagagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcuauaau aguaugggg auccaucauu ccguuucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuucguac cgaguccagg agcgagacca caaguuaaug gucuauccgg aagaauugac 720

uuucauuggc uaauacuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccaauuguga aggggacugc uaucauagug gugggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

aggagucugc ugcuggcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagcaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugauagca 1320

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gugaaaagac agcugagaga gaaugcugaa gaggauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaca acaccuauga ucacagaaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaagcu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 46033
<211> 1683
<212> RNA
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agaaaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcaaauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcuauaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aagcaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug guuuaucugg aagaauugac 720

uuucauuggc uaauauuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

cagguugaug ccgauuguga aggggacugc uaucauagug gagggacaau aauaaguaac 900

uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaaacaa 960

aggagucugc ugcuagcaac agggaugaag aauguuccug agauuccaaa gggaagaggc 1020

cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

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caaucggcaa uugaucaaau aacagggaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugaau ugauagacaa ugaauucauc gagguagaga aacaaauugg uaaugugaua 1260

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gugaaaagac aacugagaga gaaugcugaa gaagauggca cuggcugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagc auuaggaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca gaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu uccagccauu 1620

guaaugggcc uugucuucau guguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 46034
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc uaggaucugc 180

ucaaaaggga aacggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucggccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaaaca augggguuca cauacaaugg aauaagaauu 420

aauggaguaa ccagugcaug uaagagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcuauaau aguaugggggg auccaucauu ccguuucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuucguac cgaguccagg agcgagacca caaguuaaug gucuauccgg aagaauugac 720

uuucauuggc uaauacuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugagg gggaaaucua uaggaaucca gaguggagua 840

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uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

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uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

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caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

aauuggacca gagauucuau aacagaagug uggucauaca augcugaacu cuugauagca 1320

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gugaaaagac agcugagaga gaaugcugaa gaggauggca cugguugcuu ugaaauauuu 1440

cacaagugug augaugacug uauggccagu auuagaaaca acaccuauga ucacagaaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaagcu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau augugugaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 46035
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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ggaguggaag ucgucaaugc aacugaaaca guggaacgaa caaacauccc caggaucugc 180

ucaaaaggga aaaggacagu ugaccucggu caauguggac uccuggggac aaucacugga 240

ccaccucaau gugaccaauu ccuagaauuu ucagccgauu uaauuauuga gaggcgagaa 300

ggaagugaug ucuguuaucc ugggaaauuc gugaaugaag aagcucugag gcaaauucuc 360

agagaaucag gcggaauuga caaggaagca augggauuca cauacagugg aauaagaacu 420

aauggagcaa ccagugcaug uaggagauca ggaucuucau ucuaugcaga aaugaaaugg 480

cuccugucaa acacagauaa ugcugcauuc ccgcagauga cuaagucaua uaaaaauaca 540

agaaaaagcc cagcucuaau aguaugggg auccaucauu ccguaucaac ugcagagcaa 600

accaagcuau augggagugg aaacaaacug gugacaguug ggaguucuaa uuaucaacaa 660

ucuuuuguac cgaguccagg agcgagacca caaguuaaug gucuaucugg aagaauugac 720

uuucauuggc uaaugcuaaa ucccaaugau acagucacuu ucaguuucaa uggggcuuuc 780

auagcuccag accgugcaag cuuccugaga ggaaaaucua ugggaaucca gaguggagua 840

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uugccauuuc agaacauaga uagcagggca guuggaaaau guccgagaua uguuaagcaa 960

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cuauuuggug cuauagcggg uuucauugaa aauggauggg aaggccuaau ugaugguugg 1080

uaugguuuca gacaccagaa ugcacaggga gagggaacug cugcagauua caaaagcacu 1140

caaucggcaa uugaucaaau aacaggaaaa uuaaaccggc uuauagaaaa aaccaaccaa 1200

caauuugagu ugauagacaa ugaauucaau gagguagaga agcaaaucgg uaaugugaua 1260

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cacaagugug augaugacug uauggccagu auuagaaaua acaccuauga ucacagcaaa 1500

uacagggaag aggcaaugca aaauagaaua cagauugacc cagucaaacu aagcagcggc 1560

uacaaagaug ugauacuuug guuuagcuuc ggggcaucau guuucauacu ucuagccauu 1620

guaaugggcc uugucuucau auguguaaag aauggaaaca ugcggugcac uauuuguaua 1680

uaa 1683

<210> 46036
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__EPI445996

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aauguuccug ugacacaugc caaagaauug cuccacacag aucacaaugg aaugcugugu 180

gcaacaaauc uaggacaucc ccucauccua gauacaugca acgucgaagg acugauuuac 240

ggcaacccuu cuugugaccu ucuguuggga ggaagagaau gguccuacau cgucgaaaga 300

ccaucggcag ugaauggaac guguuacccu gggaauguag aaaacuuaga ggaacucaga 360

acacuuuuua guuccucuag uuccuaccaa aggauccaaa uuuucccaga uacaaucugg 420

aaugugacuu acacuggaac aagcaaauca uguucagacu ccuucuauag gaauaugaga 480

uggcugacuc aaaagaacgg ucuuuacccu guucaagaug cccaauucac aaacaaucgg 540

ggaaaggaca uccuuuuugu augggcaua caucauccac ccaccgauac ugcacagacg 600

aauuuauaca caagaaccga cacaacaaca agcgugacaa cagaaaaucu ggauaggacu 660

uucaaaccau uaauagggcc aaggccacuu guuaaugguc uaauuggaag aauuaacuau 720

uauuggucag uacuaaaacc aggccagaca uugcgaguac gauccaaugg gaaucuaauu 780

gcuccauggu auggacaugu ucucucagga gagagccaug ggagaauccu gaagacuaau 840

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cugccauucc acaauauuag uaaauaugca uucgggaacu gccccaaaua uauuggaguc 960

aaaagucuca aacuagcaau cggucugaga aacgugccug ccaaaucaag uagaggacua 1020

uuuggagcca uagcuggauu cauagaagga gguuggccag gacuagucgc ugguugguau 1080

gguuuccagc auucuaauga ucaagggguu gguauagcgg cagauagggu uucaacccaa 1140

aaggcaguug auaaaauaac auccaaggug aauaauauag uggauaagau gaacaagcaa 1200

uaugaaauaa uugaucauga auucagugag guugagacua gacucaauau gaucaauaau 1260

aaaauugaug accaaauaca agacguaugg gcauauaaug cagaauugcu aguauuacuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguga acaaucugua uaacaaagug 1380

aaaagggccu ugggcucaaa ugcgcuggaa gauggaaagg guuguuucga gcuauaccau 1440

aaaugugaug accaaugcau ggaaacaauu aggaacggga ccuauaauag gagaaaguac 1500

caagaggaau caagacugga aaggcagaaa auagaaggga uaaagcugga gucugagggg 1560

acuuacaaaa uccucacuau uuauucgacu gucgccucau cucuuguacu ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucu aauggaucau gcaggugcaa cauuuguaua 1680

uaa 1683

<210> 46037
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acugucacac augcccaaga uauacuggaa aagacacaca acgggaagcu cugcgaucua 180

gauggaguga agccucuaau uuuaagagau uguaguguag cuggauggcu ccucggaaac 240

ccaaugugug acaaauucaa cgaugugccg gaaugguucuu acauagugga gaaggccaac 300

ccagccaaug accucuguua cccagggaau cucaacgauu augaagaacu gaaacaccua 360

uugagcagaa uaaaccauuu ugagaaaauu cagacuuucc ccaaaagcuc uugguccgau 420

caugaagccu cauuggggu gagcgcggca uguccauacc agggaaugcc cuccuuuuuc 480

agaaaugugg uauggcuuau caaaaagaac aauacauacc caacaauaaa gaguagcuac 540

aauaauacca aucaagaaga ucuuuugaua cugugggga uucaucauuc uaaugaugag 600

gcagaacaga caaggcucua ucaaaacuca aacaccuaua uuuccguugg gacaucaaca 660

cuaaaccaga gauugguacc aaaaauagcu acuagaucca aaguaaacgg gcaaagugga 720

aggauggauu uuuucuggac aauuuuaaaa ccgaaugaug caaucaacuu cgagaguaac 780

ggaaauuuca uugcuccaga auaugcauac aaaauuguca agaaaggaga cucagcaauu 840

augaaaagug aaguaggaua uggugacugc aacaccaagu gucaaacucc aauaggggcg 900

auaaacucua guaugccauu ccacaacaua cacccucuca ccaucgggga augccccaaa 960

uaugugaaau caaacaaauu aguccuugcg acugggcuca gaaauagccc ucaaauugaa 1020

acuagaggau uauuuggagc uauagcaggu uuuauagagg gaggauggca gggaauggua 1080

gaugguuggu augguacca ccauagcaau gaacagggga gugguacgc ugcagacaaa 1140

gaauccacuc aaaaggcaau agauggaguc accaauaagg ucaacucgau cauugacaaa 1200

augaacacuc aguuugaggc cguugagagg gaauuuaaua acuuagaaag gagaauagag 1260

aauuugaaca agaaaaugga agacggauuc cuagaugucu ggacuuauaa ugcugaacuu 1320

cugguucuca uggaaaauga gagaacucua gacuuccaug acucaaaugu caagaaccuu 1380

uacgacaagg uccgacuaca gcuuagggau aaugcaaagg agcuggguaa cgguuguuuu 1440

gaguucuauc acaaauguga uaaugaaugc auggaaagug uaagaaacgg aacguaugac 1500

uacccgcagu auucagaaga agcaagauua aaaagagagg aaauaagugg aguaaaauug 1560

gaaucaauag gaacuuacca aauacuguca auuuauucaa caguugcaag uucccuagca 1620

cuggcaauca ugguggcugg ucuaucuuua uggaugugcu ccaaugggguc guuacagugc 1680

agaauuugca uuuaa 1695

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<211> 1683
<212> RNA
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aucugcaucg gcuaccaauc aacaaacucc acagaaaccg uagacacgcu aacagaaaac 120

aauguuccug ugacacaugc caaagaauug cuccacacag agcacaaugg gaugcugugu 180

gcaacaaauc ugggacgucc ucuuauucua gacacuugca ccauugaagg acugaucuau 240

ggcaacccuu cuugugaucu acuguuggga ggaagagaau gguccuacau cgucgaaaga 300

ccaucggcug uuaauggaau guguuacccc gggaauguag aaaaccuaga ggaacuaagg 360

ucauuuuuua guucugcuag uuccuaccaa agaauccaga ucuuuccaga cacaaucugg 420

aaugugucuu acaguggaac aagcaaagca uguucagauu cauucuacag gagcaugaga 480

ugguugacuc aaaagaacaa cgcuuacccu auucaagacg cccaauacac aaauaauaga 540

ggaaagagca uucuuuucau gugggcaua aaucacccac cuaccgauac ugcacagaca 600

aaucuguaca caaggacuga cacaacaaca aguguggcaa cagaagauau aaauaggacc 660

uucaaaccag ugauagggcc aaggccccuu gucaaugguc ugcagggaag aauugauuau 720

uauuggucgg uauugaaacc aggucagaca uugcgaguaa gauccaaugg gaaucuaauc 780

gcuccauggu augggcacau ucuuucagga gagagccacg gaagaauccu gaagacugau 840

uuaaacagug guagcugugu agugcaaugu caaacagaaa gagguggcuu aaauacuacu 900

uugccauucc acaaugucag uaaauaugca uuuggaaacu gcccaaaaua uguuggagua 960

aagagucuca aacuggcagu uggucugagg aaugugccug cuagaucaag uagaggacua 1020

uuuggggcca uagcuggauu cauagaggga gguuggucag ggcuggucgc ugguugguau 1080

gggguuccagc auucaaauga ucaagggguu gguauagcug cagauagaga cucaacucaa 1140

agggcaauug acaaaauaac guccaaagug aauaauauag ucgauaaaau gaacaagcaa 1200

uaugaaauua uugaucauga auucagcgag guugaaaaua gacucaauau gaucaauaau 1260

aagauugaug accagauaca agacauaugg gcauauaacg cugaauugcu agugcugcuu 1320

gaaaaccaga aaacacucga ugagcaugau gcgaauguaa acaaucuaua uaacaaagug 1380

aagagggcac uggguuccaa ugcaauggaa gaugggaaag gauguuucga gcuauaccau 1440

aaaugugaug aucagugcau ggagacaauu cggaacggga ccuauaacag gaggaaguau 1500

aaagaggaau caagacuaga aagacagaaa auagaagggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aauggaucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 46039
<211> 1683
<212> RNA
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<220>
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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu auugcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag aucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acaaugggac aagcaaagcu ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaacgg cgauuacccc auccaagacg uccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uuuugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccacg gaagaauucu gaagacugau 840

cuaaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagccuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuaguugc ugguugguau 1080

gggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacucaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcaa 1200

uaugaaauca uugaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuu 1320

gaaaaccaga aaacacucga ugagcaugac gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaua accaaugcau ggagacaauu cggaacggga ccuacaacaa aaggaaauau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

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<211> 1683
<212> RNA
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aucugcaucg gucaccaguc aacaaacucc acagaaacug uggacacgcu aacagaaacc 120

aauguuccug ugacacaugc caaagaauug cuccaaacag agcacaaugg aaugcugugu 180

gcgacaaauc uggggcaucc ccucauucua gacacaugca cuaucgaagg acuaaucuau 240

ggcaaccccu cuugugaccu gcuauuggag ggaagagaau gguccuacau agucgaaaga 300

cccucagcug uaaacggaac uuguuacccu gggaauguag aaaaccuaga ggaacucagg 360

acacuuuuua guuccgccag uuccuaccaa agaauccaaa ucuucccaga cacaacaugg 420

aauguuacuu acacuggaac aagcagauca uguucagguu cauucuacag gaguaugaga 480

uggcugacuc aaaaaagcgg guuuuacccu guccaagacg ccaaauacac aaauaacagg 540

gggaagaaca uccuuuucgu gugggguaua caucacccac acaccuauac cgaccaaaca 600

acuuuguaca uaagaaacga cacaacaaca agugugacaa cagaggaguu gaauaggauc 660

uucaaaccag ugauagugcc aaggcuucuu gucaaugguc agcaggggag aauugauuau 720

uauuggucag uacuaaaacc aggccaaaca uugcgaguaa gauccaaugg gaaucuaauu 780

gcuccauggu auggacacgu ucuuucagga gggagccaug gaagaauccu gaagacugau 840

uuaaaaagug gcaauugugu agugcaaugu cagacugaaa aagguggauu aaacaguaca 900

uugcccuucc acaauaucag caaauaugca uuuggaaccu gccccaaaua uguaaaaguc 960

aauagucuca aacuggcaau uggucugagg aaugugccug cuagaucaaa uagaggacua 1020

uuuggggcua ucgcugguuu cauagaagga gguuggccag gacuaguagc uggcugguau 1080

gguuuccagc auucaaauga ucaagggguu gguauggccg cagauaggga uucaacucaa 1140

aaggcaguug auaaaauaac aucuaaggug aauaauauag ucgacaagau gaauaagcaa 1200

uaugaaauaa uugaucauga auucagugag guugaaacua gacucaauau gaucaauaau 1260

aagauugaug aucaaauaca agacguaugg gcauauaaug cagaauugcu aguacuacuu 1320

gaaaaccaga aaacgcucga ugagcaugau gcgaacguga acaaucuaua uaacaaggug 1380

aagagggcuc ugggcuccaa ugcuauggaa gaugggaaag guuguuucga guuauaccau 1440

aagugugaug aucaaugcau ggaaacaauu cgaaacggga ccuaugauag gagaaaguau 1500

agagaggaau caagauuaga acggcagaga auagaagggg uuaaacugga aucugaggga 1560

acuuacaaaa uccucacuau uuauucgacu gucgccucau cucuugugau ugcgaugggg 1620

uuugcugccu uccuguucug ggccaugucc aaugguucuu gcaggugcaa cauuuguaua 1680

uaa 1683

<210> 46041
<211> 1683
<212> RNA
<213> Artificial Sequence

<220>
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hemagglutinin__InfluenzaA__ANZ03807

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aucugcaucg gcuaucaauc aacaaacucc acagaaacug uggacacacu aacagaaaac 120

aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu aucgcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccgga cacaauaugg 420

aaugugucuu acgauggaac aaguacagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaacgg cgauuacccu acccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uccuuuucau gugggggcaua aaucauccac ccaccgauga uacgcagaga 600

aaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucug uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccaug gaagaauucu gaagacugau 840

uugaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

cugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacucguugc ugguugguau 1080

gggguuccagc auucaaauga ccaaggggua gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guggaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguuuuacuu 1320

gaaaaucaga aaacacucga ugagcaugac gcaaauguga acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaauguaaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu guugccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 46042
<211> 1683
<212> RNA
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<220>
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hemagglutinin__InfluenzaA__EPI680526

<400> 46042

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aauguccccug ugacacaugc caaagaacug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu aucgcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccgga cacaauaugg 420

aaugugucuu acgauggaac aaguacagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaacgg cgauuacccu acccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uccuuuucau gugggggcaua aaucauccac ccaccgauga uacgcagaga 600

aaucuguaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aaggccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucug uauugaaacc gggucaaaca cugcgaauaa aaucugaugg gaaucuaaua 780

gcuccauggu auggacacau ucuuucagga gagagccaug gaagaauucu gaagacugau 840

uugaaaaggg guagcugcac agugcaaugu cagacagaga aagguggcuu aaacacaaca 900

cugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacucguugc ugguugguau 1080

gggguuccagc auucaaauga ccaaggggua gguauggcag cagauagaga cucaacccaa 1140

aaggcaauug auaaaauaac auccaaagug aauaauauag ucgacaaaau gaacaagcag 1200

uaugaaauca uugaucauga auucagugag guggaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguuuuacuu 1320

gaaaaucaga aaacacucga ugagcaugac gcaaauguga acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaauguaaug accaaugcau ggagacaauu cggaacggga ccuacaacag aaggaaguau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu guugccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 46043
<211> 1683
<212> RNA
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aauguccccug ugacacaugc aaaagaauug cuccacacag agcauaaugg gaugcugugu 180

gcaacaagcu ugggacaacc ucuuauuuua gacaccugca ccauugaagg gcuaaucuau 240

ggcaauccuu cuugugaucu aucgcuggaa ggaagagaau gguccuauau cgucgagaga 300

ccaucagcug uuaacggauu guguuacccc gggaauguag aaaaucuaga agagcuaagg 360

ucacuuuuua guucugcuag gucuuaucaa agaauccaga uuuucccaga cacaaucugg 420

aaugugucuu acgaugggac aagcacagca ugcucagguu cauucuacag aagcaugaga 480

ugguugacuc gaaagaacgg cgauuacccu auccaagacg cccaauacac aaauaaucaa 540

gggaagaaca uucuuuucau gugggggcaua aaucacccac ccaccgauac uacgcagaga 600

gaucuauaca cgagaaccga cacaacaacg aguguggcaa cagaagaaau aaauaggauc 660

uucaaaccau ugauaggacc aagaccucuu gucaacgguu ugaugggaag aauugauuau 720

uauuggucgg uuuugaaacc aggucaaaca cugcgaauaa aaucugaugg gaaccuaaua 780

gcuccauggu uuggacacau ucuuucagga gagagccacg gaagaauucu gaagacuaau 840

cuaaaaaggg guagcugcac cgugcaaugu cagacagaga aagguggcuu aaacacaaca 900

uugccauucc aaaauguaag uaaguaugca uuuggaaacu gcucaaaaua cauuggcaua 960

aagagucuca aacuugcagu uggucugagg aaugugccuu cuagaucuag uagaggacua 1020

uucggggcca uagcaggguu uauagaggga gguuggucag gacuagucgc ugguugguau 1080

ggguuccagc auucaaauga ccaagggguu gguauggcag cagauagaga cucaacucaa 1140

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uaugaaauca ucgaucauga auucagugag guagaaacua gacuuaacau gaucaauaau 1260

aagauugaug aucaaaucca ggauauaugg gcauauaaug cagaauugcu aguucugcuc 1320

gaaaaccaga aaacacucga ugagcaugau gcaaauguaa acaaucuaua uaauaaagua 1380

aagagggcgu uggguuccaa ugcgguggaa gaugggaaag gauguuucga gcuauaccac 1440

aaaugugaug accaaugcau ggagacaauu cgaaacggga ccuacaacag aaggaaauau 1500

caagaggagu caaaauuaga aagacagaaa auagaggggg ucaagcugga aucugaagga 1560

acuuacaaaa uccucaccau uuauucgacu gucgccucau cucuugugau ugcaaugggg 1620

uuugcugccu ucuuguucug ggccaugucc aaugggucuu gcagaugcaa cauuuguaua 1680

uaa 1683

<210> 46044
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgacccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu aagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccgguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaaa gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagaauca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46045
<211> 1362
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAA43397

<400> 46045
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agccuaauau ugcaaauagg aaauauaauc ucaauaugga uuagccauuc aauucaaacc 120

ggaaaucaaa accauacugg aauaugcaac caaggcagca uuaccuauaa aguuguugcu 180

gggcaggacu caacuucagu gauauuaacc ggcaauucau cucuuugucc cauccguggg 240

ugggcuauac acagcaaaga caauggcaua agaauugguu ccaaaggaga cguuuuuguc 300

auaagagagc cuuuuauuuc auguucucac uuggaaugca ggaccuuuuu ucugacucaa 360

ggcgccuuac ugaaugacaa gcauucaagg gggaccuuua aggacagaag cccuuauagg 420

gccuuaauga gcugcccugu cggugaagcu ccgucccccgu acaauucaag guuugaaucg 480

guugcuuggu cagcaagugc augucaugau ggagugggcu ggcuaacaau cggaauuucu 540

gguccagaug auggagcagu ggcuguauua aaauacaacc gcauaauaac ugaaaccaua 600

aaaaguugga ggaagaauau auugagaaca caagagucug aauguaccug uguaaauggu 660

ucauguuuua ccauaaugac cgauggccca agugaugggc uggccucgua caaaauuuuc 720

aagaucgaga aggggaaggu uacuaaauca auagaguuga augcaccuaa uucucacuac 780

gaggaauguu ccuguuaccc ugauaccggc aaagugaugu gugugugcag agacaauugg 840

cacgguucga accgaccaug gguguccuuc gaccaaaacc uagauuauaa aauaggauac 900

aucugcagug gggguuuucgg ugacaacccg cgucccaaag auggaacagg cagcuguggc 960

ccagugucug cugauggagc aaacggagua aagggauuuu cauauaagua uggcaauggu 1020

guuuggauag gaaggacuaa aagugacagu uccagacaug gguuugagau gauuugggau 1080

ccuaauggau ggacagagac ugauaguagg uucucuauga gacaagaugu uguggcaaua 1140

acuaaucggu caggguacag cggaaguuuc guucaacauc cugagcuaac agggcuagac 1200

uguaugaggc cuugcuucug gguugaauua aucagggggc uaccugagga ggacgcaauc 1260

uggacuagug ggagcaucau uucuuuuugu ggugugaaua gugauacugu agauuggucu 1320

uggccagacg gugcugaguu gccguucacc auugacaagu ag 1362

<210> 46046
<211> 1365
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAA43412

<400> 46046
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agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaaacauca uuaccuauaa aaauagcacc 180

uggguaaagg acacaacuuc agugauauua accggcaauu caucucuuug ucccauccgu 240

gggugggcua uauacagcaa agacaauagc auaagaauug guuccaaagg agacguuuuu 300

gucauaagag agcccuuuau uucauguucu cacuuggaau gcaggaccuu uuuucugacc 360

caaggugccu uacugaauga caggcauuca aaugggacug uuaaggacag aagcccuuau 420

agggccuuaa ugagcugccc ugucggugaa gcuccguccc cguacaauuc aagauuugaa 480

ucgguugcuu ggucagcaag ugcaugucau gauggcaugg gcuggcuaac aaucggaauu 540

ucagguccag auaauggagc aguggcugua uuaaaauaca acggcauaau aacugaaacc 600

auaaaaaguu ggaggaagaa aauauugagg acacaagagu cugaaugugc cuguguaaau 660

gguucauguu uuacuauaau gacugauggc ccgagugaug ggcuggccuc guacaaaauu 720

uucaagaucg aaaaggggaa gguuacuaaa ucaauagagu ugaaugcacc uaauucucac 780

uaugaggaau guuccuguua cccugauacc ggcaaaguga ugugugugug cagagacaau 840

uggcaugguu cgaaccggcc augggugucu uucgaucaaa accuggauua ucaaauagga 900

uacaucugca gugggguuuu cggugacaac ccgcguccca aagauggaac aggcagcugu 960

gguccagugu auguugaugg agcaaacgga guaaagggau uuucauauag guaugguaau 1020

gguguuugga uaggaaggac caaaagucac aguuccagac augggguuga gaugauuugg 1080

gauccuaaug gauggacaga gacugauagu aaguucucug ugaggcaaga uguuguggca 1140

augacugauu ggucagggua uagcgggagu uucguucaac auccugagcu aacagggcua 1200

gacuguauaa ggccgugcuu cuggguugaa uuaaucaggg gacgaccuaa agaaaaaaca 1260

aucuggacua gugcgagcag cauuucuuuu uguggcguga auagugauac uguagauugg 1320

ucuuggccag acggugcuga guugccauuc accauugaca aguag 1365

<210> 46047
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAG01743

<400> 46047
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ugcuuccuca ugcagauugc cauccuggua accacuguaa cauugcauuu caagcaauau 120

gagugcgacu acccagcgaa caaccaagca augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua ucugacuaac accaccauag aaaaagaggu augccccaaa 240

uuaguggaau acaggaauug gucaaaacca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugu guuugcauca augggacuug uacaguggua 720

augacugaug gaagugcuuc aggaagagcu gauaccaaaa uacuauucau ugaagagggg 780

aaaauuguuc auacuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauuaauu ccaguuaugu gugcucaggg 960

cuuguggcg acacacccag aaacaaugac agaucuagca guagcuauug ccagaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaauaucau gccuauauaa 1410

<210> 46048
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAG01759

<400> 46048
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaug 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua auacugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaaaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccguuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auauuagccc auuguuagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcaauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucagguu augaaaccuu caaagucauu 1140

gaagguuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46049
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAG01777

<400> 46049

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua auacugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaaaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccguuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auuguuagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcaauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggauggu ccaaaccuaa cuccaaauug cagauaaaua ggccagucau aguugacaga 1200

ggugauaggu ccgguuauuc uggcauuuuu ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46050
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAG01786

<400> 46050
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua auacugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaaaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccguuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auauuagccc auuguuagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcaauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau agucgacaga 1200

ggugauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46051
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAK71688

<400> 46051
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua auacugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac gccaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaaa uuacaggauu ugcaccauuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auauuagccc auuguuagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcaauug ccugaauccu 1020

aacaaugagg aaggagguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggugacaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46052
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01169

<400> 46052
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuac agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46053
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01170

<400> 46053
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46054
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01171

<400> 46054
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gguaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46055
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01172

<400> 46055
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46056
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01173

<400> 46056
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46057
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01174

<400> 46057
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46058
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01175

<400> 46058
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuac agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46059
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01176

<400> 46059
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46060
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01177

<400> 46060
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46061
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAN01178

<400> 46061
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46062
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01179

<400> 46062
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46063
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01180

<400> 46063
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaacgagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46064
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01181

<400> 46064
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgagaaauuc cgcucagguu augaaacuuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46065
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01182

<400> 46065
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46066
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01183

<400> 46066
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguccccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46067
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01184

<400> 46067
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46068
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01185

<400> 46068
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46069
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01186

<400> 46069
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaacga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaga uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcuuagguu augaaacuuu caaagucauu 1140

gaaggcuggu ccaaaucuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug uaucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46070
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01187

<400> 46070
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcgacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaacga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca aaugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46071
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN01188

<400> 46071
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46072
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64883

<400> 46072
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguugggg acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg agaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaaguaauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46073
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64884

<400> 46073
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc acucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

ccuauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguugggg acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46074
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64885

<400> 46074
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggggg acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug caaauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46075
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64886

<400> 46075
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguugggg acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46076
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64887

<400> 46076
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc auggucuaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggg acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46077
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64888

<400> 46077
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ugcuuccuua ugcaaauugu cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag acauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46078
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64889

<400> 46078
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc acucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

ccuauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguugggg acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46079
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64890

<400> 46079
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcacuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagag augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaca guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggggg acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46080
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAN64891

<400> 46080
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguugggg acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46081
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46212

<400> 46081
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugaaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauacugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46082
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__AAO46213

<400> 46082
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauacugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46083
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46214

<400> 46083
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

gcaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggauuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46084
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46215

<400> 46084
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccacgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacggcgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaaa gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagaauca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46085
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46216

<400> 46085
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uacgugucau gcgauccuag caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gaaaacaaac auucaaaugg cacaaaacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugaagggagg cuuguggaca guauuguuuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacagc 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguuaau aaggggaagg ccacaggaga cuagaguaug guggacauca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46086
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46217

<400> 46086
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguagaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gugauccuag caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguugcc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuugaggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuuuag acauaaguau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaacug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaaucg caggucaaua gacaggucau aguggacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ucacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguucug uggcacuuca ggcacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46087
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46218

<400> 46087
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguagaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gugauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguugcc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuugaggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuuuag acauaaguau ggaagauuau agcauugguu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaacug cagggauccu 1020

aacaaugaga gagggaaucc gggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaaucg caggucaaua gacaggucau aguggacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ucacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguucug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46088
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46220

<400> 46088
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

gcaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accagacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggauuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46089
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46221

<400> 46089
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

gcagcggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accagacaag ugugguagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggauuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacagguuau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46090
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAO46223

<400> 46090
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagcca caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga auguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46091
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46224

<400> 46091
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagcca caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga auguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46092
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46225

<400> 46092
augaauccaa aucaaaagau aauaacaauu ggcuuugucu cucucaucau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcaag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacaa agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg acuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaauaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accagacaag ugugugugagc augguccagc 540

ucaaguuguc augauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucac 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc acauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cuccaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac ggaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag uaaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46093
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAO46226

<400> 46093

augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

uccaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugaugaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuaguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46094

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46229

<400> 46094
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauaaugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auaguaauug caggaauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacaaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46095
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46230

<400> 46095
augaauccaa aucaaaagau aauaacgauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aaccuaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucuauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaac 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auaguaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46096
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46231

<400> 46096
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuucuca ugcagauugc cauccuggua acuacuguaa cauugcacuu uaagcaacau 120

gauugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugu caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaguacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucacuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaac 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucggga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggug acacacccag aaacgacgac agaucuagca auaguaauug caggaauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46097
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46232

<400> 46097
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcacuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua ccugaacaac accaccauag agaaagagau cugccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaaucc aggagugaaa gggugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu cuacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46098
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46233

<400> 46098
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcagcagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

aauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaggcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46099
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAO46235

<400> 46099
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac acuaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46100
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46236

<400> 46100
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcauauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46101
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46237

<400> 46101
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

auaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggc 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46102
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46238

<400> 46102
augaauccaa aucaaaagau aauaacaauu ggcucugccu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaacau 120

gagugcgacu cucccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

auaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggag acacaccuag aaacgacgac agaucuagca auagcaauug cagaaauccu 1020

aacaaugaga aagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguucug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 46103
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46241

<400> 46103

augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augcccaaaa 240

guaguggau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucaucuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccgggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc cgguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46104
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAO46245

<400> 46104
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuucuca ugcagauugc cauccuggua acuacuguaa cauugcacuu uaagcaacau 120

gauugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugu caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaguacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucacuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auuggcagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgaugac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggacuca aggagugaaa ggcugggccu uugacaaugg aaaugacuug 1080

uggaugggaa gaacaaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagu 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46105
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46246

<400> 46105
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguaa cauugcauuu uaagcagcau 120

gagugcgacu ccccagcaag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua cuugaauaac accaucauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcacccuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacaaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug cuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuuuau gccuauauaa 1410

<210> 46106
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAO46247

<400> 46106
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaagg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguugcc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaacccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46107
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46462

<400> 46107
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46108
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46463

<400> 46108
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46109
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46464

<400> 46109
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu caggguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46110
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46465

<400> 46110
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46111
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAO46466

<400> 46111
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46112
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46467

<400> 46112
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugacagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46113
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46468

<400> 46113
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu uccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46114
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46469

<400> 46114
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguagaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46115
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAO46471

<400> 46115
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggaccug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46116
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46472

<400> 46116
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaac aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggggа ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

agugguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aagcaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46117
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46473

<400> 46117
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggggа ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46118
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46474

<400> 46118
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46119
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAO46475

<400> 46119
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aauaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46120
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46476

<400> 46120
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caggcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc gggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguuaau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46121
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46477

<400> 46121
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aauaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46122
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46478

<400> 46122
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaucau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaaacaacau 120

gagugcgacu cccccucgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagac augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg acucucugcu gguggggaca uuuggguuac gagagagccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cacaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augguacuug cacaguagua 720

augacugaug ggaaugcuuc agggagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucguag acauaaauau gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca agagcaauug caggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacaaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua ggcaagucau aguugacagc 1200

gauaaucggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaga cuagaguaug guggacuuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaacuucau gccuauauaa 1410

<210> 46123
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46479

<400> 46123
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccgagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gguaaucggu caggguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca ggcaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46124
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46481

<400> 46124
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguggaca guauugguuc augguucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc acauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu cccguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugaga gcaaaagcug caucaauagg 1260

ugcuuuuacg uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46125
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46482

<400> 46125
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaaugau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu cccguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaua aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuacg uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46126
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46483

<400> 46126
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caggcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguuaau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46127
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46485

<400> 46127
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga auguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu cccguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaua aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuacg uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46128
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46486

<400> 46128
augaauccaa aucaaaagau aauaacgauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaaaccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguggaca guauugguuc augguucuca 660

aauauucuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga gaggaaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugggauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46129
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46489

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag aaauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

aacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuacg uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46130
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAO46491

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46131
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO46492

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46132
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAO88264

<400> 46132
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agucuauuau ugcagauagg aaauauaguc ucguuaugga uaagccauuc aauucagacu 120

ggaaagaaaa acuacucuaa gauaugcagu aaaaguguca uuacauauga aaacaacaca 180

ugggugaacc aaacuuaugu aaacauuagc aauaucaaca uugcugaugg acagggagua 240

aauucaauaa uacuagccgg caauuccucu cuuugcccaa uaaguggaug ggcuauauac 300

agcaaagaca auagcauaag gaucgguucc aaaggagaca uuuuugucau aagagaacca 360

uucauuucau gcucucauuu ggagugcagg accuuuuuuc ugacccaagg ugcuuugcug 420

aaugacaggc auucuaaugg aaccgucaaa gacaggaguc cuuauaggac cuuaaugagu 480

ugcccgauug gugaagcucc aucuccguac aauucaaggu ucgaaucagu ugcuugguca 540

gcaagugcau gccaugaugg aaugggaugg cuaacaaucg ggauuuccgg uccagauaau 600

ggagcagugg cuguuuugaa guacaauggg auaauaacag auacaauaaa aaguuggagg 660

aacaaaauac uaagaacaca agagucagaa ugugucugua ucaacgguuc auguuuuacu 720

auaaugacug auggcccaag caaugggcag gccucauaca aaauauucaa aauggagaaa 780

ggaaagauua uuaaaucagu ugagcuggau gcaccuaauu accacuauga ggaaugcucc 840

uguuacccug auacaggcaa aguggugugc gugugcagcg acaauuggca ugcuucgaau 900

cgaccauggg ucucuuucga ucagaaucuu gauuaucaga uaggguacau augcaguggg 960

guuuuuggug auaacccgcg uucuaaugau gggagaggca auuguggccc agugcuuucu 1020

aauggagcga auggagugaa aggauucuca uuuagauaug gcaauggugu cuggauagga 1080

agaacuaaaa guaucagcuc uagaagugga uuugagauga uuugggaucc aaauggaugg 1140

acggaaacug auaguaguuu cucuauaaag caggauguua uagcauuaac ugauugguca 1200

ggauacagug ggagcuuugu ccaacauccc gaauuaacag gaaugaacug cauaaggccu 1260

uguuucuggg uagaguuaau cagaggacaa cccaaggaga gcacaaucug gacuagugga 1320

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gcugaucugc cauucacuau ugacaaguag 1410

<210> 46133
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAQ10334

<400> 46133
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46134
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAQ10335

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacc ccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46135
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAQ10336

<400> 46135
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaaa ucaaucucau gccuauauaa 1410

<210> 46136
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__AAQ10337

<400> 46136
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggcuca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46137
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAQ10339

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagacguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46138
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAQ10341

<400> 46138
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacagaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46139
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAQ10343

<400> 46139
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cucccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uugcguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46140
<211> 1191
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAQ10344

<400> 46140
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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagca augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguccccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uaucccccgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag auacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua gcaagucaua g 1191

<210> 46141
<211> 1416
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAR11366

<400> 46141
augaauccaa aucagaaacu auuugcauua ucuggagugg caauagcacu uaguguacug 60

aacuuauuga uaggaaucuc aaacgucgga uugaacguau cucuacaucu aaaggaaaaa 120

ggacccaaac aggaggagaa uuuaacaugc acgaccauua aucaaaacaa cacuacugua 180

guagaaaaca cauacguaaa uaauacaaca auaauuacca agggaacuga uuugaaaaca 240

ccaagcuauc ugcuguugaa caagagccug ugcaauguug aaggugggu cgugauagca 300

aaagacaaug caguaagauu uggggaaagu gaacaaauca uuguuaccag ggagccauau 360

guaucaugcg acccaacagg augcaaaaug uaugccuugc accaagggac uaccauuagg 420

aacaaacauu caaauggaac gauucaugac agaacagcuu ucagaggucu caucuccacu 480

ccauugggca cuccaccaac cguaaguaac agugacuuua ugugugugg auggucaagc 540

acaacuugcc augaugggau ugcuaggaug acuaucugua uacaaggaaa uaaugacaau 600

gcuacagcaa cgguuuauua caacagaagg cugaccacua ccauuaagac cugggccaga 660

aacauucuga ggacucaaga aucagaaugu gugugccaca auggcacaug ugcaguugua 720

augaccgacg gaucggcuag uagucaagcc uauacaaaag uaauguauuu ccacaaggga 780

uuaguaguua aggaggagga guuaagggga ucagccagac auauugagga augcuccugu 840

uauggacaca aucaaaaggu gaccugugug ugcagagaua acuggcaggg agcaaacagg 900

ccuauuauag aaauugauau gaacacauug gagcacacaa guagauacgu gugcacugga 960

auucucacag acaccagcag accuggggac aaaucuagug gugauuguuc caauccaaua 1020

acugggaguc ccggcgcucc gggagugaag ggauucgggu uucuaaaugg ggauaacaca 1080

uggcuuggua ggaccaucag ccccagauca agaaguggau ucgaaauguu gaaaauaccu 1140

aaugcaggua cugaucccaa uucuagaaua gcagaacgac aggaaauugu cgacaauaac 1200

aauuggucag gcuauuccgg aagcuuuauu gacuauugga augauaacag ugaaugcuac 1260

aauccaugcu uuuacguaga guuaauuaga ggaagacccg aagaggcuaa auacguaugg 1320

uggacaagua acagucuaau ugcccuaugu ggaagcccau ucccaguugg gccugguucc 1380

uuccccgaug gggcacaaau ccaauacuuu ucguaa 1416

<210> 46142
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAS89005

<400> 46142
augaauccaa auaagaagau aauaaccauc ggaucaaucu guaugguaac uggaaugguu 60

agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac agaaagcuga accaauuagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccua uuaauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacagu 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaacaaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

auugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 46143
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAS89006

<400> 46143
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agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac acaaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gaccgucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaacaaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 46144
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAT38822

<400> 46144
augaauccga aucagaagau aauaacaauc gggguaguga auaccacucu gucaacaaua 60

gcccuuuuca uuggaguggg aaacuuaguu uucaacacag ucauacauga gaaaauagga 120

gaccaucaaa uagugaccca uccaacaaua augaccccug aaguaccgaa cugcagugac 180

acuauaauaa cauacaauaa cacuguuaua aacaacauaa caacaacaau aauaacugaa 240

gcagaaaggc cuuucaaguc uccacuaccg cugugccccu ucagaggauu cuucccuuuu 300

cacaaggaca augcaauacg acugggugaa aacaaagacg ucauagucac aagggagccu 360

uauguuagcu gcgauaauga caacugcugg uccuuugcuc ucgcacaagg agcauugcua 420

gggacuaaac auagcaaugg gaccauuaaa gacagaacac cauauagguc ucuaauucgu 480

uucccaauag gaacagcucc aguacuagga aauuacaaag agauaugcau ugcuuggucg 540

agcagcaguu gcuuugacgg gaaagagugg augcaugugu gcaugacagg gaaugauaau 600

gaugcaagug cccagauaau auauggagga cgaaugacag acuccauuaa aucauggagg 660

aaggacauac uaagaaccca ggagucugaa ugucaaugca uugacgggac uuguguuguu 720

gcugucacag auggcccugc ugcuaauagu gcagaucaca gggguuuacug gauacgggag 780

ggaagaauaa uaaaguauga aaauguuccc aaaacaaaga uacaacacuu agaagaaugu 840

uccugcuaug uggacauuga uguuuacugu auauguaggg acaauuggaa gggcucuaac 900

agaccuugga ugagaaucaa caacgagacu auacuggaaa caggauaugu auguaguaaa 960

uuucacucag acacccccag gccagcugac ccuucaauaa ugucauguga cuccccaagc 1020

aaugucaaug gaggacccgg agugaagggg uuugguuuca aagcuggcaa ugauguaugg 1080

uuagguagaa cagugucaac uaguggguaga ucgggcuuug aaauuaucaa aguuacagaa 1140

gggguggauca acucuccuaa ccaugucaaa ucaauuacac aaacacuagu guccaacaau 1200

gacuggucag gcuauucagg uagcuucauu gucaaagcca aggacuguuu ucagcccugu 1260

uuuuauguug agcuuauacg agggaggccc aacaagaaug augacgucuc uuggacaagu 1320

aauaguauag uuacuuucug uggacuagac aaugaaccug gaucgggaaa uuggccagau 1380

gguucuaaca uuggguuuau gcccaaguaa 1410

<210> 46145
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAV65827

<400> 46145
augaauccaa auaagaagau aauaaccauc ggaucaaucu guaugguaac uggaaugguu 60

agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac acaaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaacaaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 46146
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11488

<400> 46146
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcgc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46147
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11508

<400> 46147
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46148
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11538

<400> 46148
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gagaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga auguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46149
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11548

<400> 46149

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46150
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAX11558

<400> 46150
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46151
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11568

<400> 46151
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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcuacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46152
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11578

<400> 46152
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46153
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11588

<400> 46153
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ugcuuccuua ugcaaauugc cauccuggua accacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc auuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagagaaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46154
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11598

<400> 46154
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46155
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX11608

<400> 46155
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau auguccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga auguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46156
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAX11618

<400> 46156
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcgc auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46157
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX12744

<400> 46157
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46158
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX12754

<400> 46158
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46159
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX12774

<400> 46159
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uauguuucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46160
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX12804

<400> 46160
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac aacuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46161
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAX12814

<400> 46161
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46162
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX34064

<400> 46162
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agagggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg acuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46163
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX35824

<400> 46163
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucuggccaau accacuauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagagccc 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugua ugccgagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46164
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX35834

<400> 46164
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46165
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX35844

<400> 46165
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcccagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca auagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ucaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46166
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX35854

<400> 46166
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucacuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46167
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX35864

<400> 46167
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46168
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX47538

<400> 46168
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag aggaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uauguuucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caauggaagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46169
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56383

<400> 46169
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46170
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56393

<400> 46170
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggaaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46171
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56413

<400> 46171
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46172
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56423

<400> 46172
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46173
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56433

<400> 46173
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46174
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56443

<400> 46174
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46175
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56473

<400> 46175
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caguguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46176
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56483

<400> 46176
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46177
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56503

<400> 46177
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46178
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56513

<400> 46178
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46179
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56533

<400> 46179
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guguggcaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugaa ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 46180
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56543

<400> 46180
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu agugggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46181
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56553

<400> 46181
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46182
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__AAX56563

<400> 46182
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcgc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gauaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46183
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56573

<400> 46183
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaua acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46184
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56583

<400> 46184
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacgggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uauguaucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagacc acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46185
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56593

<400> 46185
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggaugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46186
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX56603

<400> 46186
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacagcacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46187
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57647

<400> 46187
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuguugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46188
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57657

<400> 46188
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46189
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57667

<400> 46189
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggaugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46190
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57677

<400> 46190
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46191
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57687

<400> 46191
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46192
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57697

<400> 46192
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46193
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAX57707

<400> 46193

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agauucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46194

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57717

<400> 46194
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46195
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57726

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggaugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46196
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57737

<400> 46196
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga augcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggaugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46197
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57747

<400> 46197
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46198
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57757

<400> 46198
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu ucgaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46199
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57767

<400> 46199
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacc cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaauggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46200
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__AAX57777

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaagg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaaacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46201
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57787

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caagugcuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu aauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggaugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauc 1140

gaagguuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46202
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__AAX57797

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46203
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57807

<400> 46203

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46204
<211> 1410
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<213> Artificial Sequence

<220>
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<400> 46204
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuaguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46205
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAX57837

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc acgucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46206
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57847

<400> 46206
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46207
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57857

<400> 46207
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaac aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46208
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57867

<400> 46208
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46209
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57877

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaagg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaaacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gcauauauaa 1410

<210> 46210
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57887

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcaucguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46211
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAX57897

<400> 46211
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauagaaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc auguugagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugauagugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46212
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57907

<400> 46212
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagaugaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46213
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAX57917

<400> 46213
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46214
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57927

<400> 46214
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46215
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAX57937

<400> 46215
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauggugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gcguauauaa 1410

<210> 46216
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX57947

<400> 46216
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaga 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauugcuu ccaguuauau gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46217
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX76626

<400> 46217
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46218
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX76646

<400> 46218
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucagguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46219
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX76656

<400> 46219
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46220
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX76666

<400> 46220
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46221
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX76696

<400> 46221
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46222
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX76736

<400> 46222
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaucagaau acagaaauug gucaaagccg caauguaaca ucacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua uaaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucaaga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagggaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaccau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46223
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAX76766

<400> 46223
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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccguu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46224
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18089

<400> 46224
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46225
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18099

<400> 46225
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucgu ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaua ucaaucucau gccuauauaa 1410

<210> 46226
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18109

<400> 46226
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ugcuuccuua ugcaaauugc cauccuggua acuacuuuaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaaa augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcagaua ucaaucucau gccuauauaa 1410

<210> 46227
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18119

<400> 46227
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggaugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46228
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18129

<400> 46228
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ugcuuccuua ugcaaauuac cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accacuauag aaaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagagccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugua ugccgagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucaggc 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaucuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46229
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18139

<400> 46229
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agagggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg acuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46230
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18149

<400> 46230
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaggg cuccaauagg 900

cccacuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46231
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18159

<400> 46231
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaagg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaaacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46232
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18179

<400> 46232
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aagauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46233
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46234
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__AAY18199

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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagua guagccauug cuuggaucca 1020

aacaaugagg aaggugguca gggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cacucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46235
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY18588

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46236
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__AAY18614

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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46237
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY27846

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46238
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY27856

<400> 46238
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucgaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46239
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY27866

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

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uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46240
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY27962

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca ucacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaauaacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46241
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY27997

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaaaugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46242
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28007

<400> 46242
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46243
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28017

<400> 46243
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46244
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28268

<400> 46244
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46245
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28278

<400> 46245
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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau auagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaccgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauaccaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaacccaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaaccggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguucug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46246
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28288

<400> 46246
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46247
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAY28298

<400> 46247

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccagaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46248

<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28308

<400> 46248
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uauguaucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46249
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28318

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgacggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaacuuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46250
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28338

<400> 46250
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau acgccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

ggcaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46251
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY28348

<400> 46251
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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46252
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28358

<400> 46252
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46253
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28388

<400> 46253
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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46254
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28398

<400> 46254
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agagggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg acuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauuaaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc auguugagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugacgg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46255
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28408

<400> 46255
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46256
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28505

<400> 46256
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46257
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28524

<400> 46257

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauua cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46258
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAY28534

<400> 46258
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46259
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28544

<400> 46259
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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuaa caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46260
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28554

<400> 46260
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46261
<211> 1410
<212> RNA
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<220>
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccagaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaaa gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY28574

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46263
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28584

<400> 46263
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46264
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28594

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46265
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28611

<400> 46265
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46266
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY28651

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucacuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46267
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY44613

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

auagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucugaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46268
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY44624

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46269
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAY44634

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

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uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

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cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag guaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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<212> RNA
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauacaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46272
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY44758

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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccucaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau auagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaccgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauaccaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaacccaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaaccggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguucug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu guugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

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cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaucuu uaaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<220>
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neuraminidase__InfluenzaA__AAY44909

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY45649

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY46374

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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuua caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

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aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

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cuuguuggag acacaccuag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucugguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY46384

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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cgcaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46279
<211> 1410
<212> RNA
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<220>
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ugcuuccuua ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauaga 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca uugaucucau gccuauauaa 1410

<210> 46280
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca caaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46281
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__AAY47016

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga aaugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacagugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaguua cagauaaaca ggcaagucau aguugaaaga 1200

ggcaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46282
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY47055

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucuu uccuauauaa 1410

<210> 46283
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY47078

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca ucacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgaucauga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucgaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcccagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagggaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca cggagugaag ggcugggccu uugaugaugg aaaugacguu 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

ggaaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY47088

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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagua guagccauug cuuggaccca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46285
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY58319

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46286
<211> 1392
<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY59038

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacaaau 420

gacacaguac augauaggac cccuuaucgg acccuauuga ugaaugaguu gggguuucca 480

uuucauuugg gaaccaagca agugugcaua gcauggucca gcucaaguug ucacgaugga 540

aaagcauggc ugcauguuug uguaacgggg gaugaugaaa augcaacugc uagcuucauu 600

uacaauggga ggcuuguaga uaguauuggu ucauggucca aaaaaauccu caggacccag 660

gagucggaau gcguuuguau caauggaacu uguacaguag uaaugacuga ugggagugcu 720

ucaggaaaag cugauacuaa aauacuauuc auugaggagg ggaaaaucgu ucauacuagc 780

ccauugucag gaagugcuca gcaugucgag gagugcuccu guuauccucg auauccuggu 840

gucagaugug ucugcagaga caacuggaaa ggcuccaaua ggcccaucgu agauauaaau 900

guaaaggauu auagcauugu uuccaguuau gugugcucag gacuuguugg agacacaccc 960

agaaaaaacg acagcuccag caguagccau ugcuuggauc cuaacaauga ggaagguggu 1020

cauggaguga aaggcugggc cuuugaugau ggaaaugacg uguggauggg aagaacgauc 1080

agcgagaagu uacgcucagg auaugaaacc uucaaaguca uugaaggcug guccaaaccu 1140

aacuccaaau ugcagauaaa uaggcaaguc auaguugaca gagguaauag guccgguuau 1200

ucugguauuu ucucuguuga aggcaaaagc ugcaucaauc ggugcuuuua uguggaguug 1260

auaaggggaa ggaaacagga aacugaaguc uuguggaccu caaacaguau uguuguguuu 1320

uguggcaccu cagguacaua uggaacaggc ucauggccug augggggcgga caucaaucuc 1380

augccuauau aa 1392

<210> 46287
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<220>
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neuraminidase__InfluenzaA__AAY64195

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

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cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cucuaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaag cugaaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46288
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY64205

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

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aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46289
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64215

<400> 46289
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46290
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__AAY64225

<400> 46290
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ugcuuccuca ugcaaauuac cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augcccaaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacggac auucgaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gacacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa augaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46291
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64245

<400> 46291
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaggucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46292
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64255

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaag ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46293
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64265

<400> 46293
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46294
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64285

<400> 46294
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46295
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64295

<400> 46295
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaucagaau acagaaauug gucaaagccg caauguaaca ucacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua uaaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc uguagggaca auuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaccau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccucg gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46296
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64305

<400> 46296
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46297
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64335

<400> 46297
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46298
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64365

<400> 46298
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agagggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg acuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46299
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAY64385

<400> 46299
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucuaaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaaucc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46300
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY64395

<400> 46300
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaucau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca gcagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacucuaa uuccaaauug cagauaaaua ggcaagucau aguugacagg 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46301
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAY64405

<400> 46301

augaauccaa accaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46302

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98040

<400> 46302
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46303
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98050

<400> 46303
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg gaguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46304
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98060

<400> 46304
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46305
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98070

<400> 46305
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaucuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46306
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98080

<400> 46306
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuacaggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46307
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98090

<400> 46307
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggug acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgauggaagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cucuaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucuuau gccuauauaa 1410

<210> 46308
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98100

<400> 46308
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46309
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__AAY98110

<400> 46309
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaggucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46310
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98120

<400> 46310
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46311
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98130

<400> 46311

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg gaguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46312
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAY98150

<400> 46312
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46313
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98160

<400> 46313
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga aaugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcaauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46314
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98170

<400> 46314
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46315
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98180

<400> 46315
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46316
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98200

<400> 46316
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46317
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98210

<400> 46317
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46318
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98220

<400> 46318
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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46319
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98230

<400> 46319
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaggucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46320
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98250

<400> 46320
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag acaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46321
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98322

<400> 46321
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46322
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98332

<400> 46322
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46323
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAY98342

<400> 46323
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg gaguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46324
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98359

<400> 46324
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46325
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98369

<400> 46325
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacuguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc acacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46326
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neuraminidase__InfluenzaA__AAY98379

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaacga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcca gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

aauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAY98389

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua gcauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46328
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<212> RNA
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<220>
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46329
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98409

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46330
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAY98773

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46331
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ32955

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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcc gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cauaguacau gaaaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggaga cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aagaggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46332
<211> 1344
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ32957

<400> 46332
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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauuaauaga aagaaacaua 120

acagagauag uguaucugac caacaccacc auagagaagg aaauaugccc caaacuagca 180

gaauacagaa auuggucaaa gccgcaaugu aacauuacag gauuugcacc uuuuucuaag 240

gacaauucga uucggcuuuc cgcugguggg gacaucuggg ugacaagaga accuuaugug 300

ucaugcgauc cugacaagug uuaucaauuu gcccuuggac agggaacaac acuaaacaac 360

gugcauucaa augacacagu acaugauagg accccuuauc ggacccuauu gaugaaugag 420

uuggguguuc cauuucaucu ggggaccaag caagugugca uagcaugguc cagcucaagu 480

ugucacgaug gaaaagcaug gcugcauguu uguguaacgg gggaugauga aaaugcaacu 540

gcuagcuuca uuuacaaugg gaggcuugua gauaguauug uuucaugguc caaaaaaauc 600

cucaggaccc aggagucaga augcguuugu aucaauggaa cuuguacagu aguaaugacu 660

gaugggaaug cuucaggaaa agcugauacu aaaauacuau ucauugagga ggggaaaauc 720

guucauacua gcacauuguc aggaagugcu cagcaugucg aggagugcuc cuguuauccu 780

cgauauccug gugucagaug ugucugcaga gacaacugga aaggcuccaa uaggcccauc 840

guagauauaa acauaaagga uuauagcauu guuuccaguu augugugcuc aggacuuguu 900

ggagacacac ccagaaaaaa cgacagcucc agcaguagcc auugcuugga uccuaacaau 960

gaggaaggug gucauggagu gaaaggcugg gccuuugaug auggaaauga cguguggaug 1020

ggaagaacga ucagcgagaa guuacgcuca ggauaugaaa ccuucaaagu cauugaaggc 1080

ugguccaacc cuaacuccaa auugcagaua aauaggcaag ucauaguuga cagagguaau 1140

agguccgguu auucugguau uuucucuguu gaaggcaaaa gcugcaucaa ucggugcuuu 1200

uauguggagu ugauaagggg aagaaaacag gaaacugaag ucuuguggac cucaaacagu 1260

auuguugugu uuuguggcac cucagguaca uauggaacag gcucauggcc ugaugggcg 1320

gacaucaauc ucaugccuau auaa 1344

<210> 46333
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<212> RNA
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neuraminidase__InfluenzaA__AAZ32958

<400> 46333

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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauuaauaga aagaaacaua 120

acagagauag uguaucugac caacaccacc auagagaagg aaauaugccc caaacuagca 180

gaauacagaa auuggucaaa gccgcaaugu aacauuacag gauuugcacc uuuuucuaag 240

gacaauucga uucggcuuuc cgcugguggg gacaucuggg ugacaagaga accuuaugug 300

ucaugcgauc cugacaagug uuaucaauuu gcccuuggac agggaacaac acuaaacaac 360

gugcauucaa augacacagu acaugauagg accccuuauc ggacccuauu gaugaaugag 420

uuggguguuc cauuucaucu ggggaccaag caagugugca uagcaugguc cagcucaagu 480

ugucacgaug gaaaagcaug gcugcauguu uguguaacgg gggaugauga aaaugcaacu 540

gcuagcuuca uuuacaaugg gaggcuugua gauaguauug uuucaugguc caaaaaaauc 600

cucaggaccc aggagucaga augcguuugu aucaauggaa cuuguacagu aguaaugacu 660

gaugggaaug cuucaggaaa agcugauacu aaaauacuau ucauugagga ggggaaaauc 720

guucauacua gcacauuguc aggaagugcu cagcaugucg aggagugcuc cuguuauccu 780

cgauauccug gugucagaug ugucugcaga gacaacugga aaggcuccaa uaggcccauc 840

guagauauaa acauaaagga uuauagcauu guuuccaguu augugugcuc aggacuuguu 900

ggagacacac ccagaaaaaa cgacagcucc agcaguagcc auugcuugga uccuaacaau 960

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ggaagaacga ucagcgagaa guuacgcuca ggauaugaaa ccuucaaagu cauugaaggc 1080

ugguccaacc cuaacuccaa auugcagaua aauaggcaag ucauaguuga cagagguaau 1140

agguccgguu auucugguau uuucucuguu gaaggcaaaa gcugcaucaa ucggugcuuu 1200

uauguggagu ugauaagggg aagaaaacag gaaacugaag ucuuguggac cucaaacagu 1260

auuguugugu uuuguggcac cucagguaca uauggaacag gcucauggcc ugaugggcg 1320

gacaucaauc ucaugccuau auaa 1344

<210> 46334
<211> 1344
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__AAZ32959

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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauuaauaga aagaaacaua 120

acagagauag uguaucugac caacaccacc auagagaagg aaauaugccc caaacuagca 180

gaauacagaa auuggucaaa gccgcaaugu aacauuacag gauuugcacc uuuuucuaag 240

gacaauucga uucggcuuuc cgcugguggg gacaucuggg ugacaagaga accuuaugug 300

ucaugcgauc cugacaagug uuaucaauuu gcccuuggac agggaacaac acuaaacaac 360

gugcauucaa augacacagu acaugauagg accccuuauc ggacccuauu gaugaaugag 420

uuggguguuc cauuucaucu ggggaccaag caagugugca uagcaugguc cagcucaagu 480

ugucacgaug gaaaagcaug gcugcauguu uguguaacgg gggaugauga aaaugcaacu 540

gcuagcuuca uuuacaaugg gaggcuugua gauaguauug uuucaugguc caaaaaaauc 600

cucaggaccc aggagucaga augcguuugu aucaauggaa cuuguacagu aguaaugacu 660

gaugggaaug cuucaggaaa agcugauacu aaaauacuau ucauugagga ggggaaaauc 720

guucauacua gcacauuguc aggaagugcu cagcaugucg aggagugcuc cuguuauccu 780

cgauauccug gugucagaug ugucugcaga gacaacugga aaggcuccaa uaggcccauc 840

guagauauaa acauaaagga uuauagcauu guuuccaguu augugugcuc aggacuuguu 900

ggagacacac ccagaaaaaa cgacagcucc agcaguagcc auugcuugga uccuaacaau 960

gaggaaggug gucauggagu gaaaggcugg gccuuugaug auggaaauga cguguggaug 1020

ggaagaacga ucagcgagaa guuacgcuca ggauaugaaa ccuucaaagu cauugaaggc 1080

ugguccaacc cuaacuccaa auugcagaua aauaggcaag ucauaguuga cagagguaau 1140

agguccgguu auucugguau uuucucuguu gaaggcaaaa gcugcaucaa ucggugcuuu 1200

uauguggagu ugauaagggg aagaaaacag gaaacugaag ucuuguggac cucaaacagu 1260

auuguugugu uuuguggcac cucagguaca uauggaacag gcucauggcc ugaugggcg 1320

gacaucaauc ucaugccuau auaa 1344

<210> 46335
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAZ38465

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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46336
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ38476

<400> 46336
augaauccaa accaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46337
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ38487

<400> 46337
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauaccaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcaauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46338
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ38509

<400> 46338
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac acuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguugcc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga augcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacucuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46339
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ38586

<400> 46339
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc cauuuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46340
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAZ38597

<400> 46340
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaag 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaag ggcugggccu uugaugaugg aaaugacgua 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46341
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ38608

<400> 46341
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuuuuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauugugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ccaaucucau gccuauauaa 1410

<210> 46342
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ38619

<400> 46342
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauccugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuac caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46343
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ38641

<400> 46343
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuuuauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau aguauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau agucgacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46344
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ38653

<400> 46344
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac acuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<220>
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neuraminidase__InfluenzaA__AAZ43386

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46346
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<212> RNA

<213> Artificial Sequence

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agagggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg acuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46347
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ43408

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau gauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46348
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ74355

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ugcuuccuua ugcaaauugc cauccuggua accacuguaa cauugcauuu caagcagcac 120

gaaugcaacu cccccccaaa caaccaagca augccgugug aaccagcaau aauagaaaga 180

aacacaacag agacagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aagaggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ74366

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgauggaagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuaguca auugucagga agugcucagc augucgagga gugcucaugu 840

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cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cucuaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucuuau gccuauauaa 1410

<210> 46350
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74377

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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

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cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag agagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46351
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__AAZ74400

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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagagccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gccucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

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cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucugguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ74411

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

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cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ74422

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

ccagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuaguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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neuraminidase__InfluenzaA__AAZ74444

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caguuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucgugg auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46355
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ74455

<400> 46355
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46356
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__AAZ74477

<400> 46356
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46357
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74488

<400> 46357
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46358
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74499

<400> 46358
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46359
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74510

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucuaaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucuggggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46360
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74521

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46361
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74532

<400> 46361
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucuaaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga aaugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 46362
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74543

<400> 46362
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ugcuucuuua ugcaaauugc cauuuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46363
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74565

<400> 46363
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgaugggaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46364
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74598

<400> 46364
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac acuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46365
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74609

<400> 46365
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga augcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46366
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ74620

<400> 46366
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46367
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAZ79508

<400> 46367

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggaugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46368

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79519

<400> 46368
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucccccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgauaaaaau 600

gcaacagcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccagaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46369
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79530

<400> 46369
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46370
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79552

<400> 46370
augaauccaa aucaaaaaau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cucauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46371
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79563

<400> 46371
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg gaguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46372
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79574

<400> 46372
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46373
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79585

<400> 46373
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uagaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46374
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79618

<400> 46374
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46375
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79633

<400> 46375
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaag 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuagauccu 1020

aacaaugaag aaggugguca uggagugaag ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46376
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAZ79945

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46377
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79966

<400> 46377

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucuggggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46378
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__AAZ79977

<400> 46378
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46379
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ79988

<400> 46379
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46380
<211> 1410
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neuraminidase__InfluenzaA__AAZ79999

<400> 46380
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46381
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ80010

<400> 46381
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu cccguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaua aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauca cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuacg uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuucu gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46382
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ80021

<400> 46382
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46383
<211> 1410
<212> RNA
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<220>
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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<211> 1413
<212> RNA
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46385
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ83280

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46387
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<212> RNA
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<220>
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaagg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaaacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc auguugagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ83302

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

gcuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuc ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacgggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46389
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ83315

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cacugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu aauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46390
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ83326

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcgacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcucuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacagac auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucugaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaacuuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__AAZ83374

<400> 46391
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcacaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46392
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ83385

<400> 46392
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46393
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__AAZ85129

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggccc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacua ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac uauugacaag uag 1413

<210> 46394
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA06513

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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46395
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA06545

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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcua cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46396
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA08478

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46397
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA08511

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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46398
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12699

<400> 46398
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46399
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12710

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46400
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12721

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucaa ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg cuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucggaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccagagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggaugucg uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuucug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46401
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12732

<400> 46401
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc ccuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu gugugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46402
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12743

<400> 46402
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauuuaa 1410

<210> 46403
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12754

<400> 46403
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

uguuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46404
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12765

<400> 46404
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46405
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12776

<400> 46405
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46406
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA12786

<400> 46406
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46407
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA18029

<400> 46407
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46408
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA18040

<400> 46408
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46409
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA18126

<400> 46409
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacaug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46410
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABA18148

<400> 46410
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuuuaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggacguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46411
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA18159

<400> 46411
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auguaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccaauauaa 1410

<210> 46412
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26703

<400> 46412
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag acuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46413
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26714

<400> 46413
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga augcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46414
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26736

<400> 46414
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46415
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26747

<400> 46415
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46416
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26758

<400> 46416
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaguug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46417
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26769

<400> 46417
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46418
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26780

<400> 46418
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag acuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggaaggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46419
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26791

<400> 46419
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46420
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA26802

<400> 46420
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46421
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABA42250

<400> 46421

augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug gugauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46422

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42261

<400> 46422
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46423
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42272

<400> 46423
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucaa cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46424
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42294

<400> 46424
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuguucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga augcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46425
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42305

<400> 46425
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46426
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42316

<400> 46426
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag guaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46427
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42327

<400> 46427
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcu gccucguaua aaaucuucaa gauugaaaaa 780

gggaaaguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gaugggggcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46428
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42338

<400> 46428
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag aaauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagagu acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua gacaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46429
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42349

<400> 46429
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46430
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABA42360

<400> 46430
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46431
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42371

<400> 46431

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug cauaaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46432
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABA42382

<400> 46432
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46433
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42393

<400> 46433
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46434
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABA42404

<400> 46434
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugccagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46435
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42415

<400> 46435
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag guaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46436
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42446

<400> 46436
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggacuc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46437
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42457

<400> 46437
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaaa gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46438
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42468

<400> 46438
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46439
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42479

<400> 46439
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugugacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg acggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46440
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42490

<400> 46440
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

aaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46441
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42501

<400> 46441
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46442
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42512

<400> 46442
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua uccgaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46443
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42523

<400> 46443
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46444
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42534

<400> 46444
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46445
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42545

<400> 46445
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgua 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46446
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42556

<400> 46446
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaag cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46447
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42567

<400> 46447
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46448
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABA42931

<400> 46448
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ugcucccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc gugguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46449
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42942

<400> 46449
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46450
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42981

<400> 46450
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46451
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA42992

<400> 46451
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46452
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA43192

<400> 46452
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg gaaggacaaa 240

acuucaguga uauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagggagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug ugucaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46453
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA43203

<400> 46453
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugu guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46454
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA43339

<400> 46454
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cacugcauuu caagcaauau 120

gagugcagcu ccccccccaaa caaccaagua augccgugcg aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacgggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauggc augguccagc 540

ucaagcuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga gugcuccugu 840

uaucccgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aagcaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46455
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA54916

<400> 46455
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agcuugaugu ugcaaauugg gaacauaauc ucaauauggg uuagucauuc aauucagaca 120

gggacucaac accgagcuga accaugcaau cgaagcauua uuaauuauga aaacaacacc 180

uggguaaauc agacauaugu caaaaucagc aacaccaauu uucuuacuga gaaagcugug 240

gcuucaguaa gauuaguggg caauucaucu cuuugcccca uuaguggaug ggcuguauac 300

aguaaggaca acaguauaag aaucgguucc aagggggaug uguuuguuau aagagagccg 360

uucaucucau gcucccacuu ggaaugccga accuucuuuu ugacucaggg agccuugcug 420

aaugauaagc acuccaaugg gaccgucaaa gacagaagcc cuuacagaac auugaugagc 480

uguccugugg gugaggcccc cuccccauau aacucgaggu uugagucugu ugcuuggucg 540

gcaagugcuu gucaugaugg cacuaguugg uugacaauug gaauuucugg cccagacaau 600

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 660

aacaacauac ugagagcuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 720

guaaugacug acggaccaag uaaugggcag gcuucauaua agaucuucaa aauagaaaaa 780

gggaaaguag uuaaaucagu cgaauugaau gccccuaauu aucacuauga ggagugcucc 840

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 900

cggccauggg uaucuuucaa ucaaaauuug gaguaccaaa uaggauauau augcagugga 960

guuuucggag acaauccacg ccccaaugau ggaacaggca guuguggucc gguguccccu 1020

aacggggcau auggaguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1080

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1140

acuggaacgg acaguaauuu uucggugaag caagauaucg uagcuauaac ugauugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1260

uguuucuggg uugagcuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1320

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauucaccau ugacaaguag 1410

<210> 46456
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA87048

<400> 46456
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauagggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa auggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46457
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA87060

<400> 46457
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggacc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguagucc agugacuguu 1020

gauggagcug acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46458
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA87083

<400> 46458
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaaaauca ucacauauaa aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaua acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguguuuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

uguuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46459
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABA87234

<400> 46459
augaauucaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacaguacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua uuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46460
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02784

<400> 46460
augaauccaa aucaaaaaau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46461
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02795

<400> 46461
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc ccuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu gugugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46462
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02806

<400> 46462
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggacguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46463
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02817

<400> 46463
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcaa auggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46464
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABB02828

<400> 46464
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa auggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaaaggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugcccuucac cauugacaag uag 1413

<210> 46465
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02839

<400> 46465
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug gugcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga augcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46466
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02850

<400> 46466
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

ccagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

auuacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugcc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccuuug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46467
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02861

<400> 46467
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucgaucucau gccuauauaa 1410

<210> 46468
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB02872

<400> 46468
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46469
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02883

<400> 46469
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46470
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02894

<400> 46470
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauggugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46471
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02905

<400> 46471
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46472
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02916

<400> 46472
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuauugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucaa ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccagagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggaugucg uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuucug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46473
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02927

<400> 46473
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauc 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46474
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02939

<400> 46474
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

uggaugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau ggaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46475
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB02950

<400> 46475

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcgacu cucucccaaa caaccaagua augcuaugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacagac auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucugaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaacuuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46476

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02961

<400> 46476
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46477
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02972

<400> 46477
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46478
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02983

<400> 46478
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46479
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB02994

<400> 46479
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacagugcau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46480
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03005

<400> 46480
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46481
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03016

<400> 46481
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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacuguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc acacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46482
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03027

<400> 46482
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46483
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03038

<400> 46483
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacuguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc acacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46484
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB03049

<400> 46484
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuugcauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46485
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03060

<400> 46485

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46486
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB03071

<400> 46486
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguggca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46487
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03093

<400> 46487
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua gcauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc auaucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguaggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46488
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03104

<400> 46488
augaauccaa aucaaaaaau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46489
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03115

<400> 46489
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cccucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa augaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46490
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03126

<400> 46490
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuuuaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46491
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB03148

<400> 46491
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gggaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

ugcuacccag acacuggcac agugaugugu guaugcaggg acaauuggca uggcucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46492
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04286

<400> 46492
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gugauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuguucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46493
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB04297

<400> 46493
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuaccguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua auuccgugug aaccaauaac aauagaaagg 180

aacauaacag agauagugua cuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

uccaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucggucaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcauc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauagau cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gagcaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46494
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04319

<400> 46494
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccgaa caaccaagua augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuac caauuugcac uugggcaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuuaaug 480

aaugaguugg guguuccauu ucauuugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucaggg agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcuauug ccagaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46495
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04341

<400> 46495
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaguucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguccccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46496
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04352

<400> 46496
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaaacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46497
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04374

<400> 46497
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa uaaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uacccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu cccguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacaaugac aaaucuagca auagcaauug caggaauccu 1020

aacaaugaua aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaggucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauaga 1260

ugcuuuuacg uggaguugau aaggggaagg gaacaggaga cuaaaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46498
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04931

<400> 46498
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaauguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc augguucaa 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggaaaca cggagugaaa ggaugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46499
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04942

<400> 46499
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu ccccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgauugg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggugguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46500
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04953

<400> 46500
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aaucgaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46501
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04975

<400> 46501
augaauccaa aucaaaaaau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46502
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB04986

<400> 46502
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauccg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46503
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB04997

<400> 46503
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugca ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucaa gccuauauaa 1410

<210> 46504
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB05008

<400> 46504
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaagg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaaacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacagcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46505
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB05186

<400> 46505
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46506
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB05219

<400> 46506
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46507
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB46395

<400> 46507
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu ccccagcgaa caaacaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguggggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuu ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggagcugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46508
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB46417

<400> 46508
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauuacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cucuaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46509
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB46428

<400> 46509
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46510
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB46439

<400> 46510
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuucugcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggagcuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagagg 780

aggaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcaauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccucg ggugcauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46511
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB46450

<400> 46511
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46512
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB46461

<400> 46512
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga augcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46513
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB46550

<400> 46513
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gugauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguguca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuguucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcuccgguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46514
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB51955

<400> 46514
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ugcuucuuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cauaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaauucuuca ggacucagga gucagaaugc guuuguaucc auggaacuug uacaguagua 720

augacugaug ggagugcuuc aagaaaagcc gauacuaaaa uacuauucau cgaggagggg 780

aaaaucguuc auaccagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46515
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB51956

<400> 46515
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa aucacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga caguggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucugg gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagccaauau uaggaaccca agagucugaa ugggucugug ugaacggguc auguuucacc 720

auaaugaccg augacccgag uuaugaggcc gccucguaca aaaucuucaa gaucgaaagg 780

gaaaggguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uaa 1413

<210> 46516
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB51957

<400> 46516
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacgu gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauauuca gaacccagaa guucgaaugc guuuguaucc auuggaccug uacaguaguu 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46517
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB51958

<400> 46517
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguccua uccguggaug ggcuauauac 300

acaaaaggca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuuggucg 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

cguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu ugggauagga 1080

aggacuauaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uaa 1413

<210> 46518
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABB51959

<400> 46518
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucaa ugaggagggg 780

aaaaucguuc auacuagcac auguucagga agugcccagc augucgagga gugcucuugc 840

uauucucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauaga 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggccgggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46519
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB51960

<400> 46519
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ccaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuu ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucagagu uugaaucagu ugcuuggucg 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcgcccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acagcuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacgaauaug guaaugguga uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc ugauggaugg 1140

acagauacca acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggucug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uaa 1413

<210> 46520
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB53617

<400> 46520
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46521
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB53721

<400> 46521
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccucu gguggggaca ucugggugac aagagagccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcg gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46522
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB53754

<400> 46522
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cacugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cucaucgaac ccuauugaug 480

aaugaguugg guguccccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua ugaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46523
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB54517

<400> 46523
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggaccug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46524
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB59999

<400> 46524
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauuuau ugaggagggg 780

aaaaucguuc auaucagccc acuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuacguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46525
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB60010

<400> 46525
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaauacagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauuag gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacagugcau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu cccguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46526
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB77867

<400> 46526
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46527
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB79719

<400> 46527
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaacccaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46528
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB79734

<400> 46528
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacccu uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca ucacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cguucaggau augaaacuuu caaagucauu 1140

gaaggcuggu ccaacccuaa uucuaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46529
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB79791

<400> 46529

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgauugg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46530

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB79802

<400> 46530
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccucuuaaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaua ucaaucucau gccuauauaa 1410

<210> 46531
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB79813

<400> 46531
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46532
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB79960

<400> 46532
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46533
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB79971

<400> 46533
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46534
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB79982

<400> 46534
augaaugcaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46535
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB79993

<400> 46535
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa auggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46536
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80004

<400> 46536
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

ccaaucguag auauaaacau aaaggauuau agcacuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaacgaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucgggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46537
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80015

<400> 46537
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccucu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcg gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46538
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80037

<400> 46538
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucagaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgua 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46539
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80048

<400> 46539

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa auggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46540
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB80084

<400> 46540
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccucaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaacccaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46541
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80095

<400> 46541
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46542
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80162

<400> 46542
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccgaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46543
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80199

<400> 46543
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag aaauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46544
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80210

<400> 46544
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uuacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucggucucau gccuauauaa 1410

<210> 46545
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80232

<400> 46545
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuugccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc auguugagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg agaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gagggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46546
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80243

<400> 46546
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaaaaggaaa augaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46547
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80254

<400> 46547
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgguccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacagugcau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaauuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46548
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80495

<400> 46548
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cucccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaaccug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uugcguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46549
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80506

<400> 46549
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuuggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46550
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80517

<400> 46550
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46551
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB80532

<400> 46551
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46552
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80644

<400> 46552
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cucccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaac 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46553
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80664

<400> 46553
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucgu gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuugcauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaag uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46554
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80675

<400> 46554
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuugccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg ggaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46555
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80685

<400> 46555
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuggguc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46556
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80696

<400> 46556
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag aaauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46557
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80707

<400> 46557
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cucccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucgu gcgguccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46558
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80716

<400> 46558
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46559
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80725

<400> 46559
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacagu aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug caaauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uugcguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46560
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80740

<400> 46560
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcugcu cucccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uugcguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46561
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB80751

<400> 46561
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46562
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB82186

<400> 46562
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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau auagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaccgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauaccaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggca gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaacccaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu cugguuauuc ugguauuuuu ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaaccggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguucug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46563
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB82197

<400> 46563
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46564
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB82208

<400> 46564
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gucaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46565
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB82219

<400> 46565
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuauugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucuaacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccucg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugaugcug cagacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46566
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB82230

<400> 46566
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauugauu cccguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaua aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuacg uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46567
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB83018

<400> 46567
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

ggaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgaugggaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa gggugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggagcugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46568
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB83029

<400> 46568
augaauccaa aucaaaaaau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

ggaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa gggugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggagcugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46569
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB83130

<400> 46569
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguuaau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46570
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB83141

<400> 46570
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ugcuuccuuu cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46571
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB86876

<400> 46571
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agucuauugu ugcagauagg aaacauaguc ucguuaugga uuagccacuc aauucaaacc 120

ggaggaaaaa aucacucuga aaugugcaac caaaauguca uuacauaugu aaauaacaca 180

ugggugaacc gaacuuaugu aaacauuagc aauaccaaua uugcuacugu acaggaugug 240

acuucaguaa uauuagccgg caauucaucu cuuugcucag uaagugggug ggcuauauac 300

agcaaagaca auagcauaag gauugguucu aaaggggaca uuuuugucau aagagaacca 360

uucauuucau gcucucacuu ggaaugcaga acuuuuuuuc ugacccaagg cgcuuugcug 420

aaugacaagc auucuaaugg aaccgucaag gacaggaguc ccuauagaac cuuaaugagu 480

ugccccaucg gugaagcucc auccccguau aacucaaggu uugaaucagu ugcuugguca 540

gcaagugcau gccaugaugg gaugggaugg uuaacaaucg gaaucuccgg uccagauaau 600

ggagcaguag cuguuuuaaa auacaacggu auaauaacag auacaauaaa aaguuggaga 660

aacaaaauau uaagaacaca agagucagaa uguguuugua ugaacgguuc auguuuuacu 720

guauuaacug auggcccaag caaugggcaa gccucguaca aaauauucaa aguggaaaaa 780

gggaaaauaa uuaagucaau ugagcuggau gcaccuaauu accacuauga ggaaugcucc 840

uguuauccug auacaggcaa aguaaugugu guuugcagag acaauuggca ugccucgaac 900

cgaccauggg ucucuuucga ucagaaccuu gacuaucaga uaggguacau augcaguggg 960

guuuucggug auaacccgcg uucuaaugau gggaagggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa aggauucuca uuuagauaug gcaauggugu uuggauagga 1080

agaacuaaaa guauaaacuc cagaagcggg uuugagauga uuugggaucc aaaugggugg 1140

acugggacug auaguagcuu cucuaugaag caggauauua uagcauuaac ugauugguca 1200

ggauauagug gaaguuuugu ccaacauccu gaauuaacag gaaugaauug cauaaggccu 1260

uguuucuggg uagaauuaau cagagggcaa cccaaggaaa gcacaaucug ggcuagcgga 1320

agcagcaucu cuuucugugg cguagacagu gaaaccacaa gcuggucaug gccagacgga 1380

gcugaucugc cauucaccau ugacaaguag 1410

<210> 46572
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABB86886

<400> 46572
augaauacaa aucaaagaau aaucaccauu gggacagccu guuuggcaau uggaauaguu 60

aguuuguuau uacagauagg aaauauaguc ucguugugga uaagccauuc aauucaaacu 120

gaagaaaaaa accacucuga aacaugcagc caaaauuuca uuacacauga aaacaacaca 180

ugggugaacc aaacuuauau aaacauuagu aauaccaaca auguugucgg acagggcgug 240

acuucaauaa ugcuagccgg caauuccucu cuuugcccaa uaaugguug ggcuauauac 300

agcaaagaca acagcauaag gauugguucc aaaggagaca uuuuugucau aagggaacca 360

uucauuucau gcucucacuu ggagugcaga acauuuuuuc ugacccaagg ugcuuugcug 420

aaugacaagc auucuaaugg uaccgucaaa gacaggagcc ccuauagaac cuuaaugagc 480

ugccccaucg gugaagcucc aucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagugcau gccacgaugg aaugggaugg cuaacaaucg ggauuuccgg uccagauaau 600

ggggcagugg cuguuuuuaa auacaauggu auaauaacag auacaauaaa aaguuggaga 660

aacaaaauau uaagaacaca agagucagaa uguguuugua uaaacgguuc auguuuuacc 720

auaaugaccg auggcccaag caacgggcag gccucguaca aaauauucaa aauggagaaa 780

gggaagauua uuaagucagu ugagcuggau gcaccuaauu accacuauga ggaauccucc 840

uguuacccug auacaggcaa aguggugugu gugugcagag acaauuggca ugcuucgaau 900

cgaccauggg ucucuuucga ucagaaucuu gauuaucaga uaggguacau augcaguggg 960

guuuucggug auaacccgcg uucuaaugau gggaaaggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa ggaggucuca uuuagauaug gcaauggugu uuggauagga 1080

agaacuaaaa guaucagcuc uagaagugga uuugagauga uuugggaucc aaauggaugg 1140

acggaaacug auaguaguuu cucuauaaag caggauauua uagcauuaac ugauugguca 1200

ggauacagug gaaguuuugu ccaacauccc gaauuaacag gaaugaacug cauaaagccu 1260

uguuucuggg uagaguuaau cagaggacaa cccaaggaga gcacaaucug gacuagugga 1320

agcagcauuu cuuucugugg cguggacagu gaaaccgcaa gcuggucaug gccagacgga 1380

gcugaucugc cauucaccau ugacaaguag 1410

<210> 46573
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB86898

<400> 46573
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacccu ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcag 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacuauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaacagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggac gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggauggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguagcaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cuaaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46574
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB86906

<400> 46574
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agucuauugu ugcagauagg aaacauaguc ucguuaugga uuagccacuc aauucaaacc 120

ggaggaaaaa aucacucuga aaugugcaac caaaauguca uuacauaugu aaauaacaca 180

ugggugaacc gaacuuaugu aaacauuagc aauaccaaua uugcuacugu acaggaugug 240

acuucaguaa uauuagccgg caauucaucu cuuugcucag uaagugggug ggcuauauac 300

agcaaagaca auagcauaag gauugguucu aaaggggaca uuuuugucau aagagaacca 360

uucauuucau gcucucacuu ggaaugcaga acuuuuuuuc ugacccaagg cgcuuugcug 420

aaugacaagc acucuaaugg aaccgucaag gacaggaguc ccuauagaac cuuaaugagu 480

ugccccaucg gugaagcucc aucuccguau aacucaagau ucgaaucagu ugcuugguca 540

gcaagugcau gccaugaugg gaugggaugg uuaacaaucg ggaucuccgg uccggauaau 600

ggagcaguag cuguuuuaaa auacaacggu auaauaacag auacaauaaa aaguuggaga 660

aacaaaauau ugagaacaca agagucagaa uguguuugua ugaacgguuc auguuuuacu 720

guauuaacug auggcccaag caaugggcaa gccucguacg aaauauucaa aguggaaaag 780

gggaaaauaa uuaagucgau ugagcuggau gcaccuaauu accauuauga ggaaugcucu 840

uguuauccug auacaggcaa aguaaugugu gugugcagag acaauuggca ugccucgaac 900

cgaccauggg uuucuuucga ucagaaucuu aacuaucaga uaggguacau augcaguggg 960

guuuucggug auaacccgcg uucuaaugau gggaagggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa aggauucuca uuuagauaug guaauggugu uuggauagga 1080

agaacuaaaa guaucagcuc cagaaguggg uuugagaugg uuugggaucc aaaugggugg 1140

acugggacug auaguagguu uucuaugaag caggauauua uagcauuaac ugauugguca 1200

ggauacagug gaaguuuugu ccaacauccu gaauuaacag gaaugaauug cauaaggccu 1260

uguuucuggg uagaauuaau cagagggcaa cccaaggaaa gcacaaucug ggcuagcgga 1320

aguagcaucu cuuucugcgg cguaaauagu gaaaccgcaa gcuggucaug gccagacgga 1380

gcugaucugc cauucacuau ugacaaguag 1410

<210> 46575
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB86916

<400> 46575
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuacaggac ccuauugaug 480

aaugagcugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauaaguuc gugguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucgggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46576
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB86928

<400> 46576
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aagauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaacagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuaaauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggac gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggauggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccauugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cuaaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46577
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB86936

<400> 46577
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agucuauugu ugcagauagg aaacauaguc ucguuaugga uuaaccacuc aauucagacc 120

gaaggaaaaa aucacucuga gaugugcaac caaaauguca uuacauaugu aaauaauaca 180

ugggugaacc gaacuuaugu aaacauuagc aacaccaaua uugcuacugu acaggaugug 240

acuucaguaa uauuagcagg caauuccucu cuuugcccag ugaguggguug ggcuauauac 300

agcaaagaca auagcauaag gauuggcucu aaaggggaca uuuuugucau aagagaacca 360

uucauuucau gcucucacuu ggagugcaga acuuuuuuuc ugacccaagg cgcuuugcug 420

aaugacaagc auucuaaugg aaccgucagg gacaggaguc ccuauagaac uuuaaugagc 480

ugccccacug gugaagcucc aucuccguau aacucaaggu ucgaaucagu ugcuugguca 540

gcaagugcau gccaugaugg gaugggaugg uuaacaaucg ggaucuccgg uccagauaau 600

ggagcaguag cuguuuuaaa auacaauggu auaauaacag auacaauaaa aaguuggaga 660

aacaaaauau uaagaacaca agagucagaa uguguuugua ugaacgguuc auguuuuacu 720

guauuaacug auggcccaag caaugggcaa gccucguaca aaauauuuaa aguggaaaaa 780

gggaaaauaa uuaagucaau ugagcuggau gcacccaauu accacuauga ggaaugcucc 840

uguuauccug auacaggcaa aguaaugugu guuugcagag acaauuggca ugccucgaac 900

cgaccgugga ucuauuuuga ucagaaucuu gacuaucaga uaggguacau augcaguggg 960

guuuucggug auaacccccg uucuaaugau gggaagggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa aggauucuca uuuagauaug guaauggugu uuggauagga 1080

agaacuaaaa guaucaacuc cagaaguggg uuugagauga uuugggaccc aaauggaugg 1140

acuggaacug auaguaguuu cucuaugaag caggauauuc uagcaacaac ugauugguca 1200

ggauacagug gaaguuuugu ccaacauccu gaauuaacag gaaugaauug cauaaggccu 1260

uguuucuggg uagaauuaau cagagggcaa cccaaggaaa gcacaaucug ggcuagcgga 1320

agcagcaucu cuuucugugg cguaaauagu gaaaccgcaa acuggucaug gccagacgga 1380

gcugaucugc cauucaccau ugacaaguag 1410

<210> 46578
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB86947

<400> 46578
augaauacaa aucaaagaau aauaaccauu gggacaguuu gucugauagu uggaauaauu 60

agucuauugu cgcagauagg aaacauaguc ucuuuaugga uuauccauuc aauucagacc 120

ggagggaaaa aucacucuga aaugugcaac caaaauguca uuacauaugu aaauaauaca 180

ugggugaacc gaacuuauau aaacauuagc aauaccaaca uugcuacugu aaaggaugug 240

acuucaguaa uauuagcagg caauuccucu cuuugcccag uaagugggug ggcuauauac 300

agcaaagaca auagcauaag gauugguucu aaaggggaca uuuuugucau aagagaacca 360

uucauuucau gcucucacuu ggaaugcaga acuuuuuuuc ugacccaagg cgcuuugcug 420

aaugacaagc auuccaaugg aaccgucaag gacaggaguc ccuauagaac cuuaaugagc 480

ugccccaucg gugaggcucc aucuccauau aacucaaggu ucgaaucagu ugcuugguca 540

gcaagugcau gccaugaugg gaugggaugg cuaacaaucg ggaucuccgg uccagauaau 600

ggagcaguag cuguuuuaaa auacaacggu auaauaacag auacaauaaa aaguuggaga 660

aacaaaauac uaagaacaca agagucagaa uguguuugua ugaacgguuc auguuuuacu 720

guguuaacug auggcccaag caaugggcaa gccucguaca aaauauucaa aguggaaaaa 780

ggaaaaauaa uuaagucaau ugagcuggau gcaccuaauu accacuauga ggaaugcucc 840

uguuauccug acgcaggcaa aguaaugugu guuugcagag acaauuggca ugccucgaac 900

cgaccauggg ucucuuucga ccagaaucuu gacuaucaga ugggguacau augcaguggg 960

guuuucggug auaacccgcg uucuaaugau gggaagggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa aggauucuca uuuagauaug guaauggugu uuggauagga 1080

agaacuaaaa guaucaacuc cagaaguggg uuugagauga uuugggaucc aaauggaugg 1140

acuggaacug auaguaguuu cucuaugaag caggauauua uagcauuaac ugauugguca 1200

ggauacagug gaaguuuugu ccaacauccu gaauuaacag gaaugaauug cauaaggccu 1260

uguuucuggg uagaguuaau cagagggcaa cccaaggaaa gcacaauaug ggcuagcgga 1320

agcagcaucu ccuucugugg cguaaauagu gaaaccgcaa gcuggucaug gccagaugga 1380

gcugaucugc cauucaccau ugacaaguag 1410

<210> 46579
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB86957

<400> 46579
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agucuauuau ugcagauagg aaauauaguc ucguuaugga uaagccauuc aauucaaacu 120

ggagaaaaaa accacucuga gguaugcaac caaaauauca uuacauauga aaacaaaaca 180

ugggugaacc aaacuuaugu aaacauuagc aauaccaaca uugcugaggg acagggcgug 240

acuucaauaa uaauggccgg caauuccucu cuuugcccag uaagugggug ggcuauauac 300

agcaaagaca auagcauaag gauugguucc aaaggagaca uuuuugucau aagagaacca 360

uucauuucau gcucucacuu ggagugcaga accuuuuuuc ugacccaagg ugcuuugcua 420

aaugacaggc auucuaaugg aaccguuaag gacaggagcc cuuaccgaac cuuaaugagc 480

ugcccgaucg gugaagcucc auccccauau aauucaagau ucgaaucagu ugcuugguca 540

gcaagugcau gccaugaugg aaugggaugg cuaacaaucg ggauuuccgg uucagauaau 600

gaagcagugg cuguuuugaa guacaauggu auaauaacag auacaauaaa aaguuggaga 660

aacaagauac uaagaacaca agagucagaa uguguuugua uaaacgguuc guguuuuacu 720

auaaugacug auggcccaag caaugggcaa gccucguaca aaauauucaa aauggagaaa 780

gggaagauua uuaagucagu ugagcuggaa gcaccuaauu accacuauga ggaaugcucc 840

uguuacccug auacaggcaa aguggugugu gugugcagag acaauuggca ugcuucaaau 900

cgaccguggg ucucuuucaa ucagaaucuu gauuaucaga uaggguacau augcaguggg 960

guuuucggug auaacccgcg uucuaaugau gggaaaggua auuguggccc aguaccuucu 1020

aauggagcaa auggagugaa gggauucuca uuuagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaucuucuc uagaagugga uuugagauga uuugggaccc aaauggaugg 1140

acggaaacug auaguaguuu cucuauaaag caggauauua uagcauuaac ugauugguca 1200

ggauacagug gaaguuuugu ccaacauccu gaauuaacag gaaugaacug cauaaggccu 1260

uguuuuuggg uagaguuaau cagaggacaa cccaaagaga guacaaucug gacuaguggg 1320

agcagcauuu cuuucugugg uguggacagu gaaacugcaa gcuggucaug gccagacggg 1380

gcugaucugc cauucaccau ugacaaguag 1410

<210> 46580
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB96333

<400> 46580
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gauugcgacu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggaua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucuaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugcuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauauagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaugaguca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46581
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB96344

<400> 46581
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg cagguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggaua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccuaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaag uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugcuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauauagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaugaguca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46582
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB96398

<400> 46582
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagac augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggaua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguguaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugcuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46583
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABB96490

<400> 46583

augaauccaa aucaaaaaau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46584

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB96501

<400> 46584
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gugauccuag caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgaugggaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga aucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuguucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag acauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46585
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABB96534

<400> 46585
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cucccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucgu gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46586
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC02237

<400> 46586
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauuuau ugaggagggg 780

aaaaucguuc auaucagcca acuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uugcguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46587
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC02258

<400> 46587
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gagugcgacu cccccgcgaa caaucaaaua augccgugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac aucaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccuag caaguguuau caauuugcac uugggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uacccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gggcaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46588
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC02269

<400> 46588
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua accacuguaa cauugcauuu caagcaauau 120

gagugcgacu ccccagcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auacuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuugugggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46589
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC02280

<400> 46589
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg uucucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46590
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC02302

<400> 46590
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucgu gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugagaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46591
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC02313

<400> 46591
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagac augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggaua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguguaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugcuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46592
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC02324

<400> 46592
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gagugcgacu cccccgcgaa caaucaaaua augccgugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac aucaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccuag caaguguuau caauuugcac uugggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uacccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gggcaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46593
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC02335

<400> 46593

augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uagggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau uaaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46594
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC39808

<400> 46594
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gugauccuag caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgaugggaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuguucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aaggggauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46595
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC40525

<400> 46595
augaauccaa aucaaaaaau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46596
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC40536

<400> 46596
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacaguacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua uuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46597
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC40547

<400> 46597
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ugcuuccuca ugcagauugc cauccuggua accacuguaa cauugcauuu caagcaauau 120

gagugcgacu ccccagcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auacuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46598
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC40558

<400> 46598
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aguauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccagaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacauc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46599
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC40611

<400> 46599
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug uaucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46600
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC40622

<400> 46600
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguucuaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaaaugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46601
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC40634

<400> 46601
augaauccaa aucaaaaaau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguaucg auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggagcugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46602
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC40645

<400> 46602
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aagaggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46603
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC41706

<400> 46603
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46604
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC41717

<400> 46604
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa aucacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaguaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugaau ugccguucac cauugacaag uag 1413

<210> 46605
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC41728

<400> 46605
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46606
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC41742

<400> 46606
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46607
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC41956

<400> 46607
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46608
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC41967

<400> 46608
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46609
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42017

<400> 46609
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46610
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42117

<400> 46610
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46611
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42128

<400> 46611
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46612
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42139

<400> 46612
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46613
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42150

<400> 46613
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggca accacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgggaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46614
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42161

<400> 46614
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46615
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42172

<400> 46615
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcucccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46616
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42183

<400> 46616
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46617
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42195

<400> 46617
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaacgagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46618
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42310

<400> 46618
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46619
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42321

<400> 46619
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug agccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46620
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42349

<400> 46620
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46621
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42464

<400> 46621
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ucuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46622
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42497

<400> 46622
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46623
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42508

<400> 46623
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46624
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42519

<400> 46624
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46625
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42530

<400> 46625
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuuuauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46626
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABC42577

<400> 46626
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46627
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42588

<400> 46627
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46628
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42599

<400> 46628
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46629
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42610

<400> 46629
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augaccgaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46630
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42621

<400> 46630
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46631
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42632

<400> 46631
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc auguugagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46632
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42643

<400> 46632
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46633
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42654

<400> 46633
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46634
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42665

<400> 46634
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46635
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42676

<400> 46635
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46636
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42687

<400> 46636
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46637
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC42698

<400> 46637

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46638

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42709

<400> 46638
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46639
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42720

<400> 46639
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcucuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46640
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42742

<400> 46640
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaug acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aagaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46641
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42764

<400> 46641
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46642
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42775

<400> 46642
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46643
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42786

<400> 46643
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46644
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABC42797

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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46645
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42808

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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaguug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46646
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42819

<400> 46646
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46647
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42841

<400> 46647

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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aagaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46648
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC42852

<400> 46648
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac guugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46649
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42863

<400> 46649
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46650
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42874

<400> 46650
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46651
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42885

<400> 46651
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46652
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42896

<400> 46652
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46653
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42914

<400> 46653
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46654
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42932

<400> 46654
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46655
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42943

<400> 46655
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguaggau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46656
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42954

<400> 46656
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46657
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42965

<400> 46657
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguucug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46658
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC42976

<400> 46658
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagca augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46659
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42987

<400> 46659
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46660
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC42998

<400> 46660
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46661
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43009

<400> 46661
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46662
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43020

<400> 46662
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46663
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43042

<400> 46663
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gucuauauaa 1410

<210> 46664
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43053

<400> 46664
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46665
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43064

<400> 46665
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagagaaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46666
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43075

<400> 46666
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46667
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43086

<400> 46667
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaucau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46668
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43097

<400> 46668
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46669
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43108

<400> 46669
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46670
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43119

<400> 46670
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46671
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43130

<400> 46671
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46672
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43141

<400> 46672
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46673
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43152

<400> 46673
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46674
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43163

<400> 46674
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46675
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43174

<400> 46675
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46676
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43185

<400> 46676
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuagaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46677
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43478

<400> 46677
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46678
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43489

<400> 46678
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46679
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43500

<400> 46679
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacaccuag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46680
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABC43511

<400> 46680
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaacaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46681
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43522

<400> 46681
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gagggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46682
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43533

<400> 46682
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46683
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43544

<400> 46683
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46684
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC43555

<400> 46684
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag acuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggaaggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46685
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC46557

<400> 46685
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagac augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggaua ugauaaaaau 600

gcaacugcca gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucuaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugcuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46686
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC46579

<400> 46686
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcacccuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc acauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46687
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50170

<400> 46687
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46688
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50181

<400> 46688
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46689
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50192

<400> 46689
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46690
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50203

<400> 46690
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46691
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC50214

<400> 46691

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa ccccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46692

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50225

<400> 46692
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46693
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50247

<400> 46693
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46694
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50258

<400> 46694
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccauugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46695
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50280

<400> 46695
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46696
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50291

<400> 46696
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc acgucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu cugguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46697
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50302

<400> 46697
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ugcuuccuua ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46698
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50313

<400> 46698
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46699
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50324

<400> 46699
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46700
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50335

<400> 46700
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ccauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46701
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50346

<400> 46701

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46702
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC50357

<400> 46702
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46703
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50368

<400> 46703
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuggcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46704
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50379

<400> 46704
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46705
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50390

<400> 46705
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg uuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46706
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50412

<400> 46706
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacauua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc guggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46707
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC50423

<400> 46707
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacauua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc guggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46708
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC54671

<400> 46708
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cucucccaaa caaccaagua augcugugug aaccaacaau acuagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca cgaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcca auugucagga agugcucagc augucgagga gugcucaugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46709
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC54682

<400> 46709
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucaa cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46710
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67322

<400> 46710
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46711
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67474

<400> 46711
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46712
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67546

<400> 46712
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46713
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC67557

<400> 46713
augaauccaa aucaaaagau aauaacgauu ggcucugugu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaac 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggcaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauaguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacaccuag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46714
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67568

<400> 46714
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 46715
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67579

<400> 46715
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

ccagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46716
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67590

<400> 46716
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46717
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67601

<400> 46717
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46718
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67612

<400> 46718
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46719
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67623

<400> 46719
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46720
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67634

<400> 46720
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46721
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67645

<400> 46721
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46722
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67656

<400> 46722
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46723
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67700

<400> 46723
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacucuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46724
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67711

<400> 46724
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46725
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67736

<400> 46725
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcguagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46726
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67809

<400> 46726
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46727
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67820

<400> 46727
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46728
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67842

<400> 46728
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagac augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggaua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucuaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugcuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46729
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67853

<400> 46729
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46730
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67864

<400> 46730
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagac augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggaua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucuaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugcuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46731
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67886

<400> 46731
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46732
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67897

<400> 46732
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46733
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67970

<400> 46733
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caguguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46734
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABC67981

<400> 46734
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucaau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46735
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC67992

<400> 46735
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacaac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa uugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46736
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC68003

<400> 46736
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46737
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC68052

<400> 46737
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augauugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg uuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46738
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC68063

<400> 46738
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46739
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC68074

<400> 46739
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46740
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC68085

<400> 46740
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46741
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC68096

<400> 46741
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag aaauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cauauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46742
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC68225

<400> 46742
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaagcuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46743
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC68236

<400> 46743
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46744
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC72646

<400> 46744
augaauccga auaagaagau aauaaccauc ggaucaaucu guaugguaac uggaaugguu 60

agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac agaaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccua uuaaugggug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg auccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacaggaguc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacagu 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggacaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acacuccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacgggacau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaacaaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc ccuucaccau ugacaaguag 1350

<210> 46745
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84392

<400> 46745
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 46746
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84403

<400> 46746
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccucu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcg gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46747
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84414

<400> 46747
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46748
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84425

<400> 46748
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaggug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcggaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46749
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84436

<400> 46749
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46750
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84447

<400> 46750
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugca ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46751
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84501

<400> 46751
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46752
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84512

<400> 46752
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46753
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC84523

<400> 46753
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggagaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuugcagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46754
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84545

<400> 46754
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagcgcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagaucau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

uguuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46755
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC84574

<400> 46755
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46756
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABC85757

<400> 46756
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaagcuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46757
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85768

<400> 46757
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggagaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuugcagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46758
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85779

<400> 46758
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcuc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46759
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85790

<400> 46759
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaagcuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46760
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85801

<400> 46760
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46761
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85812

<400> 46761
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaaaccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46762
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85823

<400> 46762
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggagaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuugcagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46763
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85834

<400> 46763
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcguagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46764
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85845

<400> 46764
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46765
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85856

<400> 46765
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggagaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuugcagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46766
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85867

<400> 46766
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcguagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46767
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC85900

<400> 46767

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46768

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85911

<400> 46768
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacaug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46769
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85922

<400> 46769
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaac aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauucuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46770
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85933

<400> 46770
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46771
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85955

<400> 46771
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucgcau gccuauauaa 1410

<210> 46772
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85966

<400> 46772
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46773
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85977

<400> 46773
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46774
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85988

<400> 46774
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaagggaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46775
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC85999

<400> 46775
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46776
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC86010

<400> 46776
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46777
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC86021

<400> 46777

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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 46778
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC86127

<400> 46778
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagagu acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46779
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC86140

<400> 46779
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu ccccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcacccuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46780
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABC86151

<400> 46780
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu ccccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46781
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC86240

<400> 46781
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaaaaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu accauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 46782
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABC97377

<400> 46782
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagcgcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

uguuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46783
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15452

<400> 46783
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46784
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15463

<400> 46784
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46785
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15474

<400> 46785
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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46786
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15485

<400> 46786
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ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 46787
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15496

<400> 46787
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug agccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46788
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15507

<400> 46788
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaacugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46789
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15518

<400> 46789
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46790
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15529

<400> 46790
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac acuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46791
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15551

<400> 46791
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46792
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15562

<400> 46792
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucgu gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaauagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46793
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15573

<400> 46793
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauggc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46794
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15584

<400> 46794
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucgu gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugauga aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauua uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46795
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15595

<400> 46795
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccgaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuucagcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46796
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15606

<400> 46796
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46797
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15617

<400> 46797
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucaaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug ugguaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46798
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15639

<400> 46798
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cucccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucgu gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46799
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15650

<400> 46799
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46800
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15661

<400> 46800
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46801
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15683

<400> 46801
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcuc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46802
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15694

<400> 46802
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46803
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15705

<400> 46803
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46804
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15727

<400> 46804
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46805
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15749

<400> 46805
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ugcuuccuua ugcaaauugc cguccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46806
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15760

<400> 46806
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ugcuuccuua ugcaaauugc cguccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga aucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46807
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15771

<400> 46807
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46808
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15782

<400> 46808
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46809
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD15793

<400> 46809
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46810
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABD16306

<400> 46810
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46811
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16317

<400> 46811
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu ggggggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu cuaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46812
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16328

<400> 46812
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcua cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu uugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46813
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16339

<400> 46813
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46814
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16361

<400> 46814
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46815
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16475

<400> 46815
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46816
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16486

<400> 46816
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46817
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16497

<400> 46817
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggagaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuugcagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46818
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16508

<400> 46818
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46819
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16519

<400> 46819
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cucaaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaguug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46820
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16530

<400> 46820
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagaug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46821
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD16541

<400> 46821

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46822

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16552

<400> 46822
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46823
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16563

<400> 46823
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcguagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46824
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16574

<400> 46824
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaga uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaua uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacccua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucugaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuggucggag acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaaaaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46825
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16585

<400> 46825
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ugcuuucuua ugcaaauugc cauucuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu ccccccccaaa caaccaagua augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcagg ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugac 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46826
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16721

<400> 46826
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cacugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaucaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacaa agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcacccuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg gggucccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauucuca ggacccagga gucggagugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccagaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgauugg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

aaaaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46827
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16732

<400> 46827
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu ccccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaaaccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggagaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcgcagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46828
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16743

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ugcuuccuca ugcagauugc cauccuggua accacuguaa cauugcauuu caagcaauau 120

gagugcgacu ccccagcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uugguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auacuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagaugaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46829
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16754

<400> 46829
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ugcuuccuca ugcagauugc cauccuggua accacuguaa cauugcauuu caagcaauau 120

gagugcgacu ccccagcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auacuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46830
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD16765

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcacccuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 46831
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD17326

<400> 46831

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46832
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD38137

<400> 46832
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaac cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacccca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46833
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60782

<400> 46833
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46834
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60793

<400> 46834
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgugaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ucuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauuguuuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacuug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gacaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauua uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46835
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD60804

<400> 46835
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46836
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60815

<400> 46836
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46837
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60826

<400> 46837
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46838
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60837

<400> 46838
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ugcuuccuua ugcaaauugc cguccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46839
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60848

<400> 46839
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ugcuuccuua ugcaaguugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46840
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60881

<400> 46840
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46841
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60892

<400> 46841
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau uggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaguca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaauggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46842
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD60903

<400> 46842
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacgggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46843
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD60914

<400> 46843
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcu gccucguaua aaaucuucaa gauugaaaaa 780

gggaaaguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gaugggggcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46844
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60925

<400> 46844
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46845
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD60947

<400> 46845
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucuuaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau gggaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 46846
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61263

<400> 46846
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggaaugaaa ggcugggccu uugaugaugg aaaugacgua 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagguaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46847
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61274

<400> 46847
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46848
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61285

<400> 46848
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc ccuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggaaugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46849
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61296

<400> 46849
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 46850
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61307

<400> 46850
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46851
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61318

<400> 46851
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46852
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61340

<400> 46852
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaggcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46853
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61351

<400> 46853
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46854
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61362

<400> 46854
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cuccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguaac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucgaucucau gccuauauaa 1410

<210> 46855
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61373

<400> 46855
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ugcuuccuua ugcaaauugc cguccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46856
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61384

<400> 46856
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46857
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61395

<400> 46857
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46858
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61406

<400> 46858
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ugcuuccuua ugcaaguugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46859
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61521

<400> 46859
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuucuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46860
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61532

<400> 46860
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgauugg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gagaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucagucucau gccuauauaa 1410

<210> 46861
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD61543

<400> 46861
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaauuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46862
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD63066

<400> 46862
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46863
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77601

<400> 46863
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46864
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABD77612

<400> 46864
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug guuaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcaucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaagcuaa cuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46865
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77634

<400> 46865
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcaucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaagcuaa cuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46866
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77645

<400> 46866
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcaucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaagcuaa cuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46867
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77656

<400> 46867
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcaucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaagcuaa cuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46868
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77700

<400> 46868
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cacugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggauggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuu ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46869
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77722

<400> 46869
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46870
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77733

<400> 46870
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46871
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77744

<400> 46871
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugu cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggguga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46872
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77755

<400> 46872
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cacucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcaucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaagcuaa cuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46873
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD77766

<400> 46873
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cacucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcaucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaagcuaa cuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46874
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77777

<400> 46874
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugu cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaagaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggguga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46875
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD77788

<400> 46875

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ugcuuccuua ugcaaauugu cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggguga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46876

<211> 1362
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77799

<400> 46876
augaauccaa accagaaaau aauaaccauu gggucaaucu guaugguagu cggaauaauu 60

agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacc 120

ggaaaucaaa accauacugg aauaugcaac caaggcauca uuaccuauaa cguuguugcu 180

gggcaggacu caacuucagu gauauuaacc ggcaauucau cucuuugucc cauccguggg 240

ugggcuauac acagcaaaga caauggcaua agaauugguu ccaaaggaga cguuuuuguc 300

auaagagagc cuuuuauuuc auguucucac uuggaaugca ggaccuuuuu ucugacucaa 360

ggcgccuuac ugaaugacaa gcauucaaau gggaccguua aggacagaag cccuuauagg 420

gccuuaauga gcugcccugu cggugaagcu ccguccccgu acaauucaag guuugaaucg 480

guugcuuggu cagcaagugc augucaugau ggcaugggcu ggcuaacaau cggaauuucu 540

gguccagaua auggagcagu ggcuguauua aaauacaacg gcauaauaac ugaaaccaua 600

aaaaguugga ggaagaaaau auugagaaca caagagucug aauguaccug uguaaauggu 660

ucauguuuua ccauaaugac cgauggccca aguaaugggc uggccucgua caaaauuuuc 720

aagaucgaga aggggaaggu uacuaaauca auagaguuga augcaccuaa uucucacuac 780

gaggaauguu ccuguuaccc ugauaccggc aaagugaugu gugugugcag agacaauugg 840

cacgguucga accgaccaug gguguccuuc gaccaaaacc uagauuauca aauaggauac 900

aucugcagug gggguuuucgg ugacaacccg cgucccaaag auggaacagg cagcuguggc 960

ccagugucug cugauggagc aaacggagua aagggauuuu cauauaggua ugguaauggu 1020

guuuggauag gaaggacuaa aagugacagu uccagacaug gguuugagau gauuugggau 1080

ccuaauggau ggacagagac ugauaguagg uucucuguga gacaagaugu uguggcaaug 1140

acugaucggu caggguacag cggaaguuuc guucaacauc cugagcuaac agggcuagac 1200

uguaugaggc cuugcuucug gguugaauua aucaggggac gaccugagga ggaaacaauc 1260

uggacuagug ggagcaucau uucuuuuugu ggcgugaaua gugauacugu agauuggucu 1320

uggccagacg gugcugaguu gccguucacc auugacaagu ag 1362

<210> 46877
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77810

<400> 46877
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugguagu cggaauaauu 60

agccuaauau ugcaaauagg gaauauuguc ucaauaugga uuagccauuc aauucaaacu 120

ggaaaucaaa accauacugg aacuugcaac caaagcauca uuaccuauaa aaauagcacc 180

uggguaaauc aaacauaugu caauauuagc aacacuaacg uuguugcugg gaaggauaca 240

acuucaguga uauuagccgg caauucaucu cuuugcccua uccgugggug ggcuauauac 300

agcaaagaua auggcguaag aauugguucc aaaggagaug uuuuugucau aagagaaccc 360

uuuauuucau guucucacuu ggaaugcagg accuuuuuuc ugacccaagg cgcccuguug 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

ugcccuguug gugaagcucc gucccccguac aacucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguguuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aaggaaauau ugagaacaca agagucugaa ugugucugcg uaaaugguuc auguuucacu 720

auaaugaccg acggcccgag ugguggccg gccucguaca aaauuuucaa gaucgagaag 780

gggaagguua cuaaaucaau agaguuggau gcaccuaauu cucacuacga ggaauguucc 840

uguuacccug auaccagcaa agugaugugu gugugcagag acaauuggca cgguucgaac 900

cgaccauggg ugucuuucga ucaaaaucug gauuaucaaa ugggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguguauguu 1020

gauggagcaa acggaguaaa gggauuuuca uacagguaug guaauggugu uuggauaggg 1080

aggacuaaaa guaacaguuc cagacagggg uucgagauga uuugggaucc uaaugggugg 1140

acagagacug auaguaauuu cuuuacgaaa caagauguag uggcaguaac cgauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag ggcuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau caggggacga ccuaaagaaa auacaaucug gaccaguggg 1320

agcagcauuu cuuuuugugg ugugaauagu gauacuguag auuggucuug gccagacggu 1380

gccgaguugc cauucaccau ugacaaguag 1410

<210> 46878
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77832

<400> 46878
augaauccaa aucaaaagau aauaacuauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauuacauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cggugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc cggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagucc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auucuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46879
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77876

<400> 46879
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acucuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46880
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77887

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46881
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77898

<400> 46881
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aagugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46882
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77909

<400> 46882
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaacagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaguu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46883
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77920

<400> 46883
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46884
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77931

<400> 46884
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46885
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77942

<400> 46885
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuucuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 46886
<211> 1413
<212> RNA
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<220>
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuucuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuugg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uaa 1413

<210> 46887
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77964

<400> 46887
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

agaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46888
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77975

<400> 46888
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46889
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77986

<400> 46889
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggccc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46890
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD77997

<400> 46890
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauacuu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaauaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46891
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78008

<400> 46891
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau uuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46892
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78019

<400> 46892
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46893
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78030

<400> 46893
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau uggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaauag gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaauggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgaa uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46894
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD78041

<400> 46894
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuagcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46895
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78052

<400> 46895
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugu cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggguga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46896
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78063

<400> 46896
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaguguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46897
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD78074

<400> 46897

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46898

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78085

<400> 46898
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46899
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78096

<400> 46899
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46900
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78118

<400> 46900
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauuacauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc cggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagucc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auucuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46901
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD78129

<400> 46901
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauuacauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc cggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagucc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auucuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46902
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79035

<400> 46902
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46903
<211> 1353
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79115

<400> 46903
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agccuaauau uucaaauagg gaauauuguc ucaauaugga uuagccauuc aauuacugga 120

acuugcaacc gaagcaucua ugucaauauu agcaacacua acguuguugc ugggaaggau 180

acaacuucag ugauauuagc cggcaauuca ucucuuugcc cuauccgugg augggcuaua 240

uacagcaaag auaauggcgu aagaauuggu uccaaaggag auguuuuugu cauaagagaa 300

cccuuuauuu cauguucuca cuuggaaugc aggaccuuuu uucugaccca aggcgcccug 360

uugaaugaca agcauucaaa ugggaccguu aaggacagaa gcccuuauag gaccuuaaug 420

agcugcccug uuggugaagc uccgucccg uacaauucaa gguuugaauc gguugcuugg 480

ucagcaagug caugucauga uggcaugggc uggcuaacaa ucggaauuuc ugguccagau 540

gauggagcag uggcuguguu aaaauacaac ggcauaauaa cuggaaccau aaaaaguugg 600

aggaaggaaa uauugagaac acaagagucu gaaugugucu gcguaaaugg uucauguuuc 660

acuauaauga ccgacggccc gagugguggg ccggccucgu acaaaaucuu caagauugag 720

aaggggaagg uuacuaaauc aauagaguug gaugcaccua auucucacua cgaggaaugu 780

uccugcuacc cugauaccag caaggugaug ugugugugca gagacaauug gcacgguucg 840

aaccgaccau gggugucuuu cgaucaaaau cuggauuauc aaaugggaua caucugcagu 900

gggguuuucg gugacaaucc gcgucccaaa gauggaaaag gcagcugugg uccaguguau 960

guugauggag caaacggagu aaagggauuu ucauacaggu augguaaugg uguuuggaua 1020

ggaaggacua aaaguagcag uuccagacag gggguuugaga ugauuuggga uccuaauggg 1080

uggacagaga cugauaguaa uuucuuuaug aaacaagaug uaguggcagu aaccgauugg 1140

ucaggguaca gcggaaguuu cguucaacau ccugagcuaa cagggcugga cuguaugagg 1200

ccuugcuucu gggugaauu aaucagggga cgaccuaaag aaaauacaau cuggaccagu 1260

gggagcagca uuucuuuuug uggugugaau agugauacug uagauugguc uuggccagac 1320

ggugcugagu ugccauucac cauugacaag uag 1353

<210> 46904
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79126

<400> 46904
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau uaccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cguucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46905
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79137

<400> 46905
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau uaccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguggaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46906
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79148

<400> 46906
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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46907
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79159

<400> 46907
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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46908
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABD79170

<400> 46908
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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauaa cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau uaaagagggg 780

aaaaucguuc auguuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag gaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46909
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79181

<400> 46909
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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46910
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79192

<400> 46910
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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46911
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79203

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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaaa augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaauau gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46912
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79214

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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgaaga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46913
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79236

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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauaa cacagcacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau uaaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag gaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46914
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD79247

<400> 46914
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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auaucagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggcau uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucaug 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46915
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94737

<400> 46915
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46916
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94748

<400> 46916
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46917
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94759

<400> 46917
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46918
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94770

<400> 46918
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggguga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46919
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD94792

<400> 46919

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggccc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46920

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94803

<400> 46920
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46921
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94814

<400> 46921
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46922
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94825

<400> 46922
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cucccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggagccu 360

uaugugucgu gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46923
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD94847

<400> 46923
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaaaaau aauagaaaga 180

aacauaacag agauagugua ucugacaaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu guuacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auuguuagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46924
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94858

<400> 46924
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46925
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94880

<400> 46925
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46926
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94891

<400> 46926
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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca acucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaag uacuauucau ugaagagggg 780

aaaaucguuc auauuagcca auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cucuaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46927
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94902

<400> 46927
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ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46928
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94924

<400> 46928
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ugccuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auuccauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcagg ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggaaggg 780

aaaaucguuc auauuagcca auuguuagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46929
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94946

<400> 46929

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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46930
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD94957

<400> 46930
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46931
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94968

<400> 46931
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46932
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD94990

<400> 46932
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46933
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95001

<400> 46933
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauucac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaaau uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucaaugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46934
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95012

<400> 46934
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46935
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95023

<400> 46935
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46936
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95034

<400> 46936
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucau ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46937
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95056

<400> 46937
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46938
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95067

<400> 46938
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46939
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95078

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46940
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABD95089

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacgggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46941
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95100

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

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ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46942
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95111

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46943
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95122

<400> 46943
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46944
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95144

<400> 46944
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46945
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95155

<400> 46945
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46946
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95166

<400> 46946
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uuaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46947
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95177

<400> 46947
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46948
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95188

<400> 46948
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guacaacaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46949
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95199

<400> 46949
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46950
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95210

<400> 46950
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaagacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46951
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95221

<400> 46951
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46952
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95232

<400> 46952
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46953
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95243

<400> 46953
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46954
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95254

<400> 46954
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46955
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95265

<400> 46955
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaagacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46956
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95276

<400> 46956
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46957
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95287

<400> 46957
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguc 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacua ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46958
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95298

<400> 46958
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46959
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95309

<400> 46959
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaau guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46960
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95320

<400> 46960
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46961
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95331

<400> 46961
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46962
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABD95342

<400> 46962
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cacuagccgg caauucaucu cuuuguccug uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc uaacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg accagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aaacgaauau uaagaacaca agagucugaa ugugucugua uaaacgguuc auguuuuacc 720

auaaugaccg auggcccaag uaaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaaaauua cuaaaucaau agaguuggau gcacccaauu cucacuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu cuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagagggcga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 46963
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABD95353

<400> 46963
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 46964
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11660

<400> 46964
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46965
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11671

<400> 46965
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua auaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag auacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccccg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46966
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11682

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 46967
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11693

<400> 46967
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46968
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11704

<400> 46968
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucauaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46969
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11715

<400> 46969
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46970
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11726

<400> 46970
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46971
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11737

<400> 46971
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaauuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46972
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11815

<400> 46972
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46973
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABE11826

<400> 46973

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46974

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11837

<400> 46974
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46975
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11848

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46976
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11859

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

ugcuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11903

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccca uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucauuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcuu gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaag 660

aagcaaaucu uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcu gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaccc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ccaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccauucac cauugacaag uag 1413

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<212> RNA
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<220>
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcagg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaac 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggaaaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacugcu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuagacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

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ggugccgagu ugccauucac cauugacaag uag 1413

<210> 46979
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE11952

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccca uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucauuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcuu gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaag 660

aagcaaaucu uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggcu gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaccc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ccaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccauucac cauugacaag uag 1413

<210> 46980
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE12035

<400> 46980
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 46981
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE12094

<400> 46981
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46982
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE12126

<400> 46982
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugu cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggguga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46983
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE12263

<400> 46983

augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucgucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 46984
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABE12626

<400> 46984
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acaggaaaug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguggaca guauugguuc augguucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc uggcauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46985
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE12650

<400> 46985
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uguuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auauuagccc auuguuagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuucuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46986
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABE13095

<400> 46986
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau uaccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac ggcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46987
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABE13332

<400> 46987
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46988
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE13558

<400> 46988
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46989
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE13642

<400> 46989
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gagaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc acugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46990
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE13668

<400> 46990
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc acugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46991
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE13836

<400> 46991
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccucccaaa caaccaagua augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46992
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE14033

<400> 46992
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauuacauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46993
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE14055

<400> 46993
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag aaaaagaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaaguucuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46994
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABE14857

<400> 46994
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauuacauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacacaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46995
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABE15594

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauuacauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 46996
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE26994

<400> 46996
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca caguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 46997
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97641

<400> 46997
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaauu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagacg 120

uggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcagg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acagcauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucucacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc uuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccaugga uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

auuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccagcaucca gaacugacag gauuagauug uauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacauuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 46998
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97642

<400> 46998
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggc ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauaauaacc uucuuacuga gaacgcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caucaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gccccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauaug gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaucau ugacaaguag 1350

<210> 46999
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97644

<400> 46999
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaacuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaac 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggguauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aaugggggcau augggguaaa aggguuuuca uucaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcauuaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacgg gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47000
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97645

<400> 47000
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaccaac accaagcuga accaaccagc aguacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuauacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uuuaucucau gcucucacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aauuacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguuugca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaccgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau ccuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47001
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97646

<400> 47001
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agcuuaaugu ugcaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gagaaucaac accaagcuga aucaaucagc aauacuaacc cuccuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gagaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaaucg gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacacgc ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcaa gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaauaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uaucaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cguucaccau ugacaaguag 1350

<210> 47002
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97647

<400> 47002
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accgagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguucuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47003
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97649

<400> 47003
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucucacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug augggccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47004
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97651

<400> 47004
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucucacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug augggccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47005
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97653

<400> 47005
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucucacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug augggccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47006
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97654

<400> 47006
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucucacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug augggccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47007
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97655

<400> 47007
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaccagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuauacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucucacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguuugca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaauggaugg 1080

acuggaccgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 47008
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97657

<400> 47008
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agcuuagugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

gacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gauguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47009
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE97658

<400> 47009
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaccaac accaaacuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcucca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaagau uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

gacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccucu 960

aacggggcac augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga ccaaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

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<220>
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neuraminidase__InfluenzaA__ABE97659

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacga gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

gacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47011
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<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaagau uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

gacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uuguuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaaguag uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccucu 960

aacggggcac augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga ccaaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47012
<211> 1350
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97661

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaccaac accaaacuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acagcauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaagau uugagucugu ugcuugguca 480

gcaagugcuu gccacgaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

gacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccucu 960

aacggggcac augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaacaac ugauugguca 1140

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uguuucuggg uugaguuaau cagagggcga ccaaaggaga gcacaguuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47013
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABE97662

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauccagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gaccgucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aaugagaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47014
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97663

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucuucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauau ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucaa gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacgugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugcggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuagguacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

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<220>
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neuraminidase__InfluenzaA__ABE97665

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaugg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc aguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

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acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47016
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABE97666

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaccu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuuccgg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu guaugcaggg auaauuggca ugguucaaau 840

cggccauggg uaucuuucaa ccaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaguccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47017
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97667

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg gcagucauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccauuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu cgcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug guauuucugg cccagacaac 540

ggggcugugg cuguagugaa guacaauggc auaauaacug acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugag ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuacga ggaaugcucc 780

uguuauccug augcuggcaa aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggagcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacauugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47018
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97669

<400> 47018
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu cgcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug guauuucugg cccagacaau 540

ggggcugugg cuguagugaa guacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugag ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg ugucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa agguuuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47019
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97670

<400> 47019
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aguuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu cgcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug guauuucugg cccagacaau 540

ggggcugugg cuguagugaa guacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugag ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau accccuaauu aucacuauga ggaaugcucc 780

uguuacccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg ugucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa agguuuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

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acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47020
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE97671

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugcggucc gguguccucu 960

aacggggcau augggguaaa aggguucuca uuuaaauacg gcaauggugu cuggaucggg 1020

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acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47021
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97672

<400> 47021
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agcuuaaugu uacagauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcucug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugaccg acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aaugggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47022
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97675

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuauuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggcug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauagaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

ucugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47023
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97676

<400> 47023
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug ugaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg ugucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggauuuucc uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaaa ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug uauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47024
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97677

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agcuuaaugu uacaaauugg gaacauaauc ucaauauggg ucaggcauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aacacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu cgcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug guauuucugg cccagacaau 540

ggggcugugg cuguagugaa guacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugag ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47025
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97679

<400> 47025
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucaggcauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aacacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu cgcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug guauuucugg cccagacaau 540

ggggcugugg cuguagugaa guacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugag ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47026
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE97680

<400> 47026
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaac uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug guauuucugg cccagacaau 540

ggggcugugg cuguagugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugag ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47027
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97681

<400> 47027
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu cgcuugguca 480

gcgagugcuu gccaugaugg caccaguugg uugacaauug guauuucugg cccagacaau 540

ggggcugugg cuguagugaa guacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugag ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg ugucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aaugggcau augggguaaa agguuuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47028
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97682

<400> 47028
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaaucuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu cgcuugguca 480

gcgagugcuu gccaugaugg caccaguugg uugacaauug guauuucugg cccagacaau 540

ggggcugugg cuguagugaa guacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugag ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg ugucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aaugggggcau augggguaaa agguuuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47029
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<212> RNA
<213> Artificial Sequence

<220>

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neuraminidase__InfluenzaA__ABE97684

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

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agcagcauau cuuuuugugg uguaaauagu ggcacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47030
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<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

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agcagcauau cuuuuugugg uguaaauagu gacacugggg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47031
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97686

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

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ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

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<220>
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucc cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcaguggg 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47033
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABE97688

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaauaagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguacugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

ggaaaaguga uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggauuuuca uuuaaauacg gcaauggugu cugggucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccggacggu 1320

gcugaguugc cauucaucau ugacaaguag 1350

<210> 47034
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABE97690

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagauc auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aaugaaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

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<220>
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neuraminidase__InfluenzaA__ABE97691

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuaa aagagagccg 300

ugcaucucau gcucccacuu gaagugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggggcau auggggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47036
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE97694

<400> 47036
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gauucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

ucugucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguacugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

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agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47037
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE97696

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gagugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguucugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcaguggg 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

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agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

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<210> 47038
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABE97697

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuaauga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucuccu gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auuauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agaaucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu ugaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau gaaacaggua guugugguсc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagacaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcaccauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cguucaccau ugacaaguag 1350

<210> 47039
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97702

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuuauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcaguggg 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uaucaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccac ugacaaguag 1350

<210> 47040
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97703

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47041
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97705

<400> 47041
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcaguggg 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggggcau augggguaaa aggguucuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47042
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97706

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agcuuaaugu uacaaguugg gaacaugauc ucacuauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gagagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggccag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucc 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaguuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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ugcuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug ggcuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47043
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97707

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaaaggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca ggagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 47044
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<212> RNA
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<220>
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucacgg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aaugaaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucgggg acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcauccc gaacugacag ggcuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 47045
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97710

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauugaau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcaguggg 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucauugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 47046
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97711

<400> 47046
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gauugguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag ugauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaaugg uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uggcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47047
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABE97712

<400> 47047
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47048
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<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE97713

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

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<212> RNA
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

ugcuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47050
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE97717

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aacuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc ggugcccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABE97718

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucggu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucgggg acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ucagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguagauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABE97719

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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aaugaaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47053
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<212> RNA
<213> Artificial Sequence

<220>
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac accaagcuga accaaucagc aaugcuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac acuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcuguag cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca ugguucaaau 840

cggccguggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acacuccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggggcau auggggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

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<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABF47553

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ugcuuccuua ugcaaauugc cauucuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcagg ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugac 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47055
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABF47564

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47056
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47575

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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucagugg cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ugaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47057
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47058
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47597

<400> 47058
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cacugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggauggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuu ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47059
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47608

<400> 47059
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaauguaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acacuggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47060
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABF47619

<400> 47060
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc acugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcgccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47061
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABF47630

<400> 47061
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauaucauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaaugg cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47062
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47652

<400> 47062
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcagg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccaa acacuggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

gggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47063
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47663

<400> 47063
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug gcaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47064
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47674

<400> 47064
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcauc caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47065
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47696

<400> 47065
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47066
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47707

<400> 47066
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaagggcaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47067
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47718

<400> 47067
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaccc uaauggcugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuucug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47068
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47729

<400> 47068
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47069
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47740

<400> 47069
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau gggaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47070
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47751

<400> 47070
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacucaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug gcaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47071
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47773

<400> 47071
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47072
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47784

<400> 47072
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47073
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47795

<400> 47073
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47074
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47806

<400> 47074
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaacuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47075
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABF47817

<400> 47075
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47076
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47839

<400> 47076
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47077
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47850

<400> 47077
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47078
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47872

<400> 47078
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47079
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47883

<400> 47079
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47080
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47894

<400> 47080
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47081
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF47905

<400> 47081
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47082
<211> 1362
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABF47958

<400> 47082
augaauccaa accagaaaau aauaaccauu gggucaaucu guaugguagu cggaauaauu 60

agccuaauau ugcaaauagg aaauauaauc ucaauaugga uuagccauuc aauucaaacc 120

ggaaaucaaa accauacugg aauaugcaac caaggcagca uuaccuauaa aguuguugcu 180

gggcaggacu caacuucagu gauauuaacc ggcaauucau cucuuugucc cauccguggg 240

ugggcuauac acagcaaaga caauggcaua agaauugguu ccaaaggaga cguuuuuguc 300

auaagagagc cuuuuauuuc auguucucac uuggaaugca ggaccuuuuu ucugacucaa 360

ggcgccuuac ugaaugacaa gcauucaagg gggaccuuua aggacagaag cccuuauagg 420

gccuuaauga gcugcccugu cggugaagcu ccguccccgu acaauucaag guuugaaucg 480

guugcuuggu cagcaagugc augucaugau ggaaugggcu ggcuaacaau cggaauuucu 540

gguccagaug auggagcagu ggcuguauua aaauacaacg gcauaauaac ugaaaccaua 600

aaaaguugga ggaagaauau auugagaaca caagagucug aauguaccug uguaaauggu 660

ucauguuuua ccauaaugac cgauggccca agugaugggc uggccucgua caaaauuuuc 720

aagaucgaga aggggaaggu uacuaaauca auagaguuga augcaccuaa uucucacuac 780

gaggaauguu ccuguuaccc ugauaccggc aaagugaugu gugugugcag agacaauugg 840

cacgguucga accgaccaug gguguccuuc gaccaaaacc uagauuauaa aauaggauac 900

aucugcagug gggguuuucgg ugacaacccg cgucccaaag auggaacagg cagcuguggc 960

ccagugucug cugauggagc aaacggagua aagggauuuu cauauaagua ugguaauggu 1020

guuuggauag gaaggacuaa aagugacagu uccagacaug gguuugagau gauuugggau 1080

ccuaauggau ggacagagac ugauaguagg uucucuauga gacaagaugu uguggcaaug 1140

acugaucggu caggguacag cggaaguuuc guucaacauc cugagcuaac agggcuagac 1200

uguaugaggc cuugcuucug gguugaauua aucagggggc uaccugagga ggacgcaauc 1260

uggacuagug ggagcaucau uucuuuuugu ggugugaaua gugauacugu agauuggucu 1320

uggccagacg gugcugaguu gccguucacc auugacaagu aa 1362

<210> 47083
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABF56651

<400> 47083
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agcuuaaugu uacaaguugg gaacaugauc ucaauauggg ucagucauuc aauucacaca 120

gggagucaac accaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47084

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82654

<400> 47084
augaauccaa aucaaaagau aauaacgauu gguucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaguugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47085
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82665

<400> 47085
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47086
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82676

<400> 47086
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47087
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82687

<400> 47087
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagacua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc aguaacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47088
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82698

<400> 47088
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau uaccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaaugu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca uaaugaaaau 600

gcaacugcga guuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccuggauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaagccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caccaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47089
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82709

<400> 47089
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuugcauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47090
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82822

<400> 47090
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaagacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47091
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82833

<400> 47091
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47092
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82844

<400> 47092
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47093
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82855

<400> 47093

augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaauu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47094
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABF82866

<400> 47094
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47095
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82888

<400> 47095
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaaugauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcccc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47096
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82910

<400> 47096
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47097
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82921

<400> 47097
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47098
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82932

<400> 47098
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47099
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABF82943

<400> 47099
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu uagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47100
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG20474

<400> 47100
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauccagaca 120

gggaaucaac gccaagcuga accaaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cuuacagaac auugaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugaccauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacguac ugagaaccca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua aaaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggauuggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguaacuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccaguggg 1260

agcagcauau uuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47101
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26761

<400> 47101
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47102
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26772

<400> 47102
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

uguuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuucuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47103
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26783

<400> 47103
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcagg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccaa acacuggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47104
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26794

<400> 47104
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47105
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG26805

<400> 47105

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugcaacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu ggcggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgauugg cgaggaguua cgcucagguu augaaaccuu uaaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaaaucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47106

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26816

<400> 47106
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47107
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26827

<400> 47107
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47108
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26838

<400> 47108
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47109
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26860

<400> 47109
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuuccgcg gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47110
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26871

<400> 47110
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaua caaccaaaua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47111
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26893

<400> 47111
augaauccaa aucaaaagau aauaacaauu ggcucuauuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47112
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26915

<400> 47112
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47113
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26937

<400> 47113
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagg 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47114
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26948

<400> 47114
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47115
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG26959

<400> 47115

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgacggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47116
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG37123

<400> 47116
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauaacaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47117
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37134

<400> 47117
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggaaggg 780

aaaaucguuc auauuagcca auuguuagga agugcucagc augucgaaga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaacccaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47118
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37145

<400> 47118
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa ggcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47119
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG37156

<400> 47119
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc acugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaauuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47120
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37167

<400> 47120
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag aaaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucgu gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47121
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37189

<400> 47121
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua uugcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacac gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucaucua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugacg gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagcuc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugcguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47122
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37200

<400> 47122
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauucugg caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagcac acugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47123
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37211

<400> 47123
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugcaacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu ggcggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgauugg cgaggaguua cgcucagguu augaaaccuu uaaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47124
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37233

<400> 47124
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagca augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacaaua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgcggaguca cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47125
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37244

<400> 47125
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47126
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG37255

<400> 47126
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47127
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37266

<400> 47127
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47128
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37277

<400> 47128
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47129
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37288

<400> 47129
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47130
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37310

<400> 47130
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47131
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37321

<400> 47131
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47132
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37332

<400> 47132
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaacau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugca ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auuaucagga ggugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47133
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37343

<400> 47133
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaaaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47134
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37354

<400> 47134
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47135
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37365

<400> 47135
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47136
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37387

<400> 47136
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47137
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37398

<400> 47137
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucauaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47138
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37409

<400> 47138
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ugcuuccuua ugcaaauugu cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggguga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agcgcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugauag aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47139
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37442

<400> 47139
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguuu 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaagga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcgacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47140
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37453

<400> 47140
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuagga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47141
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG37464

<400> 47141
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgacggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47142
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37475

<400> 47142
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcacccuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaacccaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

ggugacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47143
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37486

<400> 47143
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaacc uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaca guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47144
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37497

<400> 47144
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgacggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uaauauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47145
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37508

<400> 47145
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ugcuuccuua ugcaaauugc cauccuggua accacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47146
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37519

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47147
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37530

<400> 47147
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47148
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABG37541

<400> 47148
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47149
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37552

<400> 47149
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47150
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37563

<400> 47150
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47151
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37585

<400> 47151
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47152
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37596

<400> 47152
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47153
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37607

<400> 47153
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47154
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG37618

<400> 47154
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucaucua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uacccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauga 1410

<210> 47155
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47810

<400> 47155
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47156
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47832

<400> 47156
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agccugauau ugcaaguagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcagg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugag ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccaa acacuggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaucug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47157
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47843

<400> 47157
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga gaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcgauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagua uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47158
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47865

<400> 47158
augaauccaa aucaaaagau aauaacuauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauuacauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcacccuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auucuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47159
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG47876

<400> 47159

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguga cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47160

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47887

<400> 47160
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47161
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47898

<400> 47161
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggguu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47162
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47909

<400> 47162
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47163
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47920

<400> 47163
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47164
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47931

<400> 47164
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47165
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47942

<400> 47165
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47166
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47953

<400> 47166
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacagugcau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 47167
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47964

<400> 47167
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac acgagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguugggg acacacccag aaaaaacgac agcuccagca guagcuauug ccagaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaagagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47168
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47975

<400> 47168
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

uccaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccgggauccu 1020

aacaaugaga gagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47169
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG47986

<400> 47169

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaaaccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47170
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG47997

<400> 47170
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uaguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47171
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48008

<400> 47171
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaaacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aagaaacgac agcuccagca guagcuauug ccggaaaccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47172
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG48019

<400> 47172
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47173
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48030

<400> 47173
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47174
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48041

<400> 47174
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucuuacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47175
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48052

<400> 47175
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47176
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48063

<400> 47176
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47177
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48074

<400> 47177
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cacucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcaucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaagcuaa cuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47178
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48085

<400> 47178
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47179
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48107

<400> 47179
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaacacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47180
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48118

<400> 47180
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgacggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaacccaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47181
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48129

<400> 47181
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47182
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48140

<400> 47182
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuacaggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47183
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48151

<400> 47183
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaca guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47184
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48173

<400> 47184
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuacaggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47185
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48184

<400> 47185
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47186
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48195

<400> 47186
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug cauagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47187
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48206

<400> 47187
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucaa cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47188
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48217

<400> 47188
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47189
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48228

<400> 47189
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47190
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48239

<400> 47190
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucaa cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47191
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48250

<400> 47191
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47192
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48272

<400> 47192
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc ccuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucauuugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47193
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48294

<400> 47193
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu ccccccccaaa caaccaagua auuccauguc aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgacccugg caaauguuau caauuugcac uuggacaggg aaccacacua 420

aacaacaggc auucaaauga uacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaga 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaagucguuc auauuagccc auugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuauuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aagaaacgac agcuccagca guagcuauug ccagaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cuaaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucgaucucau gccuauauaa 1410

<210> 47194
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48305

<400> 47194
augaauccaa aucaaaagau aauaauaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47195
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48316

<400> 47195
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacugu ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacuggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47196
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48327

<400> 47196
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggagucg uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47197
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48338

<400> 47197
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug caugugugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47198
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48349

<400> 47198
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug caugugugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47199
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48360

<400> 47199
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

agugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaag cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47200
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG48371

<400> 47200
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47201
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67138

<400> 47201
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaag caaccaagua augcugugug aaccaacaac aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggauggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuu ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47202
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABG67149

<400> 47202
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47203
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67160

<400> 47203
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuugua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaguug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguguca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau aguauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47204
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67171

<400> 47204
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47205
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67182

<400> 47205
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47206
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67193

<400> 47206
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaac aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaaaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guaguuauug cuggaauccu 1020

aacaaugaga aagggggca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47207
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67204

<400> 47207
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47208
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67215

<400> 47208
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgguccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47209
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67226

<400> 47209
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uaucccgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47210
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67248

<400> 47210
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucuuacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47211
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67480

<400> 47211
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47212
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67494

<400> 47212
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu cuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47213
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG67505

<400> 47213

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcc gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47214

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67516

<400> 47214
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcc gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47215
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67527

<400> 47215
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaacacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47216
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67538

<400> 47216
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguac 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaac aauagaaaga 180

aacacaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47217
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67549

<400> 47217
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa augaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47218
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67560

<400> 47218
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47219
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67571

<400> 47219
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47220
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67582

<400> 47220
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucaucua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcuaagc augucgagga gugcuccugu 840

uacccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47221
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67593

<400> 47221
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccugguc acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucaa cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47222
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67604

<400> 47222
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47223
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67615

<400> 47223

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47224
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG67626

<400> 47224
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaagg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47225
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67637

<400> 47225
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47226
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67648

<400> 47226
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucaucua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uacccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauga 1410

<210> 47227
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67659

<400> 47227
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuagggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47228
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG67670

<400> 47228
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc acugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47229
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG79944

<400> 47229
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47230
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG79955

<400> 47230
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47231
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG79966

<400> 47231
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccagaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47232
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG79977

<400> 47232
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagca augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47233
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG79988

<400> 47233
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47234
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG79999

<400> 47234
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47235
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG80010

<400> 47235
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggaaaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47236
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80021

<400> 47236
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47237
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80032

<400> 47237
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcaucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc acauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47238
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80043

<400> 47238
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47239
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80054

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aagaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47240
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80065

<400> 47240
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucuaaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47241
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80076

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaaaccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47242
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80087

<400> 47242
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ugcuuucuua ugcaaauugc cguccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauggc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47243
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80098

<400> 47243
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ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caaugcaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaaaccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47244
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABG80109

<400> 47244
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47245
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80120

<400> 47245
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc auuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47246
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80131

<400> 47246
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ugcuuucuua ugcaaauugc caucauggua accacuguaa cauugcauuu caaacaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

uccaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47247
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80142

<400> 47247
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47248
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80153

<400> 47248
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ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaaacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaaaccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47249
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80164

<400> 47249
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauacg gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47250
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80186

<400> 47250
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47251
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80197

<400> 47251
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47252
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80219

<400> 47252
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47253
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80230

<400> 47253
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagaa agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47254
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80241

<400> 47254
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47255
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80252

<400> 47255
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47256
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABG80263

<400> 47256
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucaa cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47257
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80274

<400> 47257
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaggug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaggcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47258
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80285

<400> 47258
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag acuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauga 1410

<210> 47259
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80296

<400> 47259
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47260
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80307

<400> 47260
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgaaga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47261
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80318

<400> 47261
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47262
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80329

<400> 47262
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47263
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80340

<400> 47263
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47264
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80351

<400> 47264
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacagaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47265
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80373

<400> 47265
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47266
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80384

<400> 47266
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47267
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG80395

<400> 47267

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugu guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aaaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuacg uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47268

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80406

<400> 47268
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug caugugugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47269
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80417

<400> 47269
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug caugugugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47270
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG80428

<400> 47270
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagggaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47271
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88292

<400> 47271
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47272
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88314

<400> 47272
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcagg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugca ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccaa acacuggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47273
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88325

<400> 47273
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuagug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa caggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacugcu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47274
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88336

<400> 47274
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cgggauaauu 60

agucuaauau ugcagauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaaaucaaa accacacugg aauaugcaac caaagaauca ucaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cacuagccgg caauucaucu cuuuguccug uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc uaacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg accagaugau 600

ggagcagugg cuguacuaaa auacaauggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccaag uaaugggccg gccucguaca agaucuucaa aaucgagaag 780

gggaaaauua cuaaaucaau agaguuggau gcacccaauu cucacuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaau uaggauacau cugcaguggg 960

auuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugguсc aguaacuguu 1020

gauggagcag acggaguaaa gggauuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaacggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaacuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa cgacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47275
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88347

<400> 47275
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cgggauaauu 60

ggucuaauau ugcagauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cacuagccgg caauucaucu cuuuguccug uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc uaacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg accagaugau 600

ggagcagugg cuguacuaaa auacaauggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uacgaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccaag uaaugggccg gccucguaca agaucuucaa aaucgagaag 780

gggaaaauua cuaaaucaau agaguuggau gcacccaauu cucacuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaau uaggauacau cugcaguggg 960

auuuucggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaacuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa cgacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47276
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88358

<400> 47276
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagacc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47277
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88369

<400> 47277

augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47278
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG88380

<400> 47278
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47279
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88391

<400> 47279
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47280
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88402

<400> 47280
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47281
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88413

<400> 47281
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaaaccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47282
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG88424

<400> 47282
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47283
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88435

<400> 47283
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47284
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88446

<400> 47284
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47285
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88457

<400> 47285
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuac ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau uaaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccagaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaagagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47286
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88468

<400> 47286
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauucuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaacccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47287
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88479

<400> 47287
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ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgaugggaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47288
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88490

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47289
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG88501

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcacccuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47290
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88512

<400> 47290
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ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47291
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABG88523

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauacg gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47292
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88534

<400> 47292
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ugcuuucuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa acaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47293
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88567

<400> 47293
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ugcuuccuua ugcaaauugc cguccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47294
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABG88600

<400> 47294
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

ccagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggguga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47295
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88611

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuagga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47296
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88622

<400> 47296
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag guaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47297
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88633

<400> 47297
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccc 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcugaua ucaaucucau gccuauauaa 1410

<210> 47298
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88655

<400> 47298
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa augaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47299
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88666

<400> 47299
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa augaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47300
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88677

<400> 47300
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47301
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88688

<400> 47301
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa augaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47302
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88699

<400> 47302
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc ccuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47303
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88710

<400> 47303
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gagggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47304
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88721

<400> 47304
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47305
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88732

<400> 47305
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacuggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47306
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88743

<400> 47306
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47307
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88754

<400> 47307
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47308
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88765

<400> 47308
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcuuugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47309
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88776

<400> 47309
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcuaugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47310
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABG88787

<400> 47310
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47311
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABG88820

<400> 47311
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaaa augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47312
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI16506

<400> 47312
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agcuuaaugu uacaaauugg gaacaugguc ucauuauggg ucagucauuc aauucagaca 120

gggaaucaac accaaguuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gauugguucc aaaggggaug uguuuguuau uagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugaaucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaaugga augauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa uguguaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu accacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagcgga 900

guuuucgggg acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccccu 960

aaugggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcccuaguuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu cucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau ccuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47313
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20840

<400> 47313
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agucuaauau ugcaaauagg gaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccca uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucauuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcuu gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaag 660

aagcaaaucu uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcu gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaccc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ccaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47314
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20862

<400> 47314
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa caggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47315
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20873

<400> 47315
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agucuaacau ugcaaauagg aaauauuauc ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

ugggugaauc aaacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuugcccua uccgugggug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaaggu ucgaaucagu ugcuugguca 540

gcaaccgcau gccaugaugg aauaggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc guaauaacug aaaccauaaa aaguuggaag 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca gaaucuucaa aauugagaag 780

gggaagauua ccaaaucaau agaauuggau gcacccaauu uucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuucaa ucaaaaccug gauuaucaaa uaggauauau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggua gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug gcaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauaa uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu uucagugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47316
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20895

<400> 47316
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuaguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucagguu augaaaccuu caaggucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47317
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20906

<400> 47317
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

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cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47318
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20928

<400> 47318
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47319
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20939

<400> 47319
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47320
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20950

<400> 47320
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47321
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20961

<400> 47321
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggagcca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47322
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20983

<400> 47322
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ugcuuccuua ugcaaguugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47323
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI20994

<400> 47323
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau aauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47324
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21005

<400> 47324
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ugcuuccuua ugcaaauugc cguccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuugcagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47325
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI21016

<400> 47325
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuagga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47326
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21027

<400> 47326
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacccca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47327
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21038

<400> 47327
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47328
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21049

<400> 47328
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccgguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47329
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21060

<400> 47329
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

ccaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47330
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21071

<400> 47330
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ugcuucuuua ugcaaauagc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

agugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47331
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21082

<400> 47331
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ugcuucuuua ugcaaauugc caccuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47332
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABI21093

<400> 47332
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaggug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47333
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21104

<400> 47333
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaggug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucuggccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47334
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21115

<400> 47334
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47335
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21126

<400> 47335
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47336
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21137

<400> 47336
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaggug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47337
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21148

<400> 47337
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47338
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21159

<400> 47338
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccgguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47339
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21170

<400> 47339
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47340
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21181

<400> 47340
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47341
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21192

<400> 47341
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aacaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaga 660

aagcggauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucau cauugacaaa uag 1413

<210> 47342
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21203

<400> 47342
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcggauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47343
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI21214

<400> 47343

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaua 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47344

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21247

<400> 47344
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaaa augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggaaugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47345
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21258

<400> 47345
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augguacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47346
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21269

<400> 47346
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggguaac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47347
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABI21280

<400> 47347
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggguaac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47348
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21302

<400> 47348
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacagaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47349
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21313

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaauu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47350
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21324

<400> 47350
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47351
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21335

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47352
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21346

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47353
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21357

<400> 47353

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaaaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaag cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47354
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI21368

<400> 47354
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga caccguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugagaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ucggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47355
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21379

<400> 47355
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacagaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47356
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21390

<400> 47356
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug caugugugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47357
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21401

<400> 47357
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47358
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21412

<400> 47358
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacc ccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47359
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21423

<400> 47359
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcuuugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47360
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21434

<400> 47360
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug caugugugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47361
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21445

<400> 47361
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggguaac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47362
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21456

<400> 47362
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggguaac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47363
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21467

<400> 47363
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47364
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21478

<400> 47364
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggguaac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47365
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI21489

<400> 47365
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47366
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21500

<400> 47366
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggguaac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47367
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21511

<400> 47367
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aagaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47368
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21533

<400> 47368
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47369
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21544

<400> 47369
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47370
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21555

<400> 47370
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47371
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21566

<400> 47371
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaaugggccc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47372
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI21577

<400> 47372
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47373
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI22112

<400> 47373
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgaa auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47374
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI22162

<400> 47374
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caguguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacgug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucgaucucau gccuauauaa 1410

<210> 47375
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI23981

<400> 47375
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac gccaagcuga aucaaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cuuacagaac auugaugagu 420

aguccugugg gugaggcucc cuccccauau aacucaagau uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaaccca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccccuu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggauuggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaauggaugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaauugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47376
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI26649

<400> 47376
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47377
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30370

<400> 47377
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcagg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccaa acacuggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47378
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30392

<400> 47378
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagacuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47379
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI30403

<400> 47379
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47380
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI30414

<400> 47380
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47381
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30425

<400> 47381
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag acuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47382
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30436

<400> 47382
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47383
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30447

<400> 47383
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag acuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47384
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30458

<400> 47384
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47385
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30469

<400> 47385
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47386
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30480

<400> 47386
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47387
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI30491

<400> 47387
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacaa agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47388
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30502

<400> 47388
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47389
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30513

<400> 47389
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47390
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30524

<400> 47390
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47391
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30535

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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47392
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30546

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaggug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcggaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacuugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

agugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggaug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47393
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30557

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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47394
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<220>
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neuraminidase__InfluenzaA__ABI30579

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47395
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<212> RNA
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaggcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47396
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47397
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABI30612

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47398
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<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47399
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABI30736

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagcca caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua gacaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcuguaug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcua cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47401
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABI30769

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47402
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABI30780

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47403
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30791

<400> 47403
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagcca caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47404
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30802

<400> 47404
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uauguaucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47405
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30813

<400> 47405
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47406
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30824

<400> 47406
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uauguaucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47407
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30835

<400> 47407
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uauguaucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47408
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABI30846

<400> 47408
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47409
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30857

<400> 47409
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug caugugugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47410
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI30868

<400> 47410
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47411
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36157

<400> 47411
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuc ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacga gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac uaagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaac 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuuuggag acaauccacg ccccaaugau ggaacaggua guugugguсc gauguccucu 960

aacggggcau augggguaaa gggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccaacaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47412
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36168

<400> 47412
augaauccaa aucagaagau aauaaccauu ggaucaaucu guauggcaau uggaacaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuc ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacga gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac uaagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaac 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuuuggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccucu 960

aacggggcau augggguaaa gggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccaacaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47413
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36179

<400> 47413
augaauccaa aucagaagau aauaaccauu ggaucaaucu guauggcaau uggaacaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuc ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacga gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac uaagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaac 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuuuggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccucu 960

aacggggcau augggguaaa gggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccaacaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47414
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36189

<400> 47414
augaauccaa aucagaagau aauaaccauu ggaucaaucu guauggcaau uggaacaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuc ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacga gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac uaagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaac 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuuuggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccucu 960

aacggggcau augggguaaa gggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccaacaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47415
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36278

<400> 47415
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau guucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

aguagcauau cuuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47416
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI36287

<400> 47416
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau guucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

aguagcauau cuuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47417
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36298

<400> 47417
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac uuagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag ggcuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47418
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36314

<400> 47418
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caacaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucu 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47419
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI36336

<400> 47419
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aguucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaggcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccuuugg gugaggcucc cucuccauau aacucaaggu uugagucugu uucuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau auggaguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagaggacgg cccaaagaga gcacaauuug gacuaguggg 1260

agcaucauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47420
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36358

<400> 47420
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aguucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaagau uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau auggaguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagaggacgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47421
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36369

<400> 47421
augaauccaa aucagaagau aauaaccauu ggaucaaucu guauggcaau uggaacaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuc ggaaugcaga acuuucuuuu ugacucaggg agcccugcug 360

aaugacaagc acuccaacga gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac uaagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaac 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuuuggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccucu 960

aacggggcau augggguaaa gggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccaacaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaacagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47422
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36391

<400> 47422
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aacucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccua uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

auuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47423
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36402

<400> 47423

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aacucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccua uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

auuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47424
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABI36413

<400> 47424
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

gggaaccaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuggcagg caauucgucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccacuc ggaaugcaga acuuucuuuu ugacucaggg agcccugcug 360

aaugacaagc acuccaacga gacugucaaa gacagaagcc cucacagaac auugaugagu 420

uguccugugg gugaggcucc cucuccauac aacucaaggu uugaaucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguguugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac uaagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggagugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca uggcucaaac 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuuuggag acaauccacg ccccaaugau ggaacaggua guuguggucc gauguccucu 960

aacggggcau augggguaaa gggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc cagaagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccaacaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcga cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaacagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 47425
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI36446

<400> 47425
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccaugga uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 47426

<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36457

<400> 47426
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac acuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg auaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47427
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI36476

<400> 47427
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aacucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccua uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47428
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI49409

<400> 47428
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacaucc ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaggugg ucaaaucagu cgaauugguu gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acaggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugcga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47429
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI49417

<400> 47429
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucgggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcag cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 47430
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI84962

<400> 47430
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47431
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI85003

<400> 47431
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gcccuucuca uuggaguggg aaacuuaguu uucaacacag ucauacauga gaaaauagga 120

gaccaucaaa uagugaccca uccaacaaua augaccccug aaguaccgaa cugcagugac 180

acuauaauaa cauacaauaa cacuguuaua aacaacauaa caacaacaau aauaacugaa 240

gcagaaaggc cuuucaaguc uccacuaccg cugugccccu ucagaggauu cuucccuuuu 300

cacaaggaca augcaauacg acugggugaa aacaaagacg ucauagucac aagggagccu 360

uauguuagcu gcgauaauga caacugcugg uccuuugcuc ucgcacaagg agcauugcua 420

gggacuaaac auagcaaugg gaccauuaaa gacagaacac cauauagguc ucuaauucgu 480

uucccaauag gaacagcucc aguacuagga aauuacaaag agauaugcau ugcuuggucg 540

agcagcaguu gcuuugacgg gaaagagugg augcaugugu gcaugacagg gaaugauaau 600

gaugcaagug cccagauaau auauggagga agaaugacag acuccauuaa aucauggagg 660

aaagacauac uaagaaccca ggagucugaa ugucaaugca uugacgggac uuguguuguu 720

gcugucacag auggcccugc ugcuaauagu gcagaucaca gggguuuacug gauacgggag 780

ggaagaauaa uaaaguauga aaauguuccc aaaacaaaga uacaacacuu agaagaaugu 840

uccugcuaug uggacauuga uguuuacugu auauguaggg acaauuggaa gggcucuaac 900

agaccuugga ugagaaucaa caacgagacu auacuggaaa caggauaugu auguaguaaa 960

uuucacucag acacccccag gccagcugac ccuucaauaa ugucauguga cucccccaagc 1020

aaugucaaug gaggacccgg agugaagggg uuugguuuca aagcuggcaa ugauguaugg 1080

uuagguagaa cagugucaac uaguggguaga ucgggcuuug aaauuaucaa aguuacagaa 1140

gggguggauca acucuccuaa ccaugucaaa ucaauuacac aaacacuagu guccaacaau 1200

gacuggucag gcuauucagg uagcuucauu gucaaagcca aggacuguuu ucagcccugu 1260

uuuuauguug agcuuauacg agggaggccc aacaagaaug augacgucuc uuggacaagu 1320

aauaguauag uuacuuucug uggacuagac aaugaaccug gaucgggaaa uuggccagau 1380

gguucuaaca uuggguuuau gcccaaguaa 1410

<210> 47432
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92294

<400> 47432
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uguuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucaac augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuucuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47433
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92305

<400> 47433
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuu aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cacuagccgg caauucaucu cuuuguccug uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc uaacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg accagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aaacgaauau uaagaacaca agagucugaa ugugucugua uaaacgguuc auguuuuacc 720

auaaugaccg auggcccaag uaaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaaaauua cuaaaucaau agaguuggau gcacccaauu cucacuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaacccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu cuggauagga 1080

agaacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47434
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92316

<400> 47434
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaguaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaggauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gguagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47435
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92327

<400> 47435
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac aguuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguaucg uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47436
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92338

<400> 47436
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47437
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92349

<400> 47437
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcaaaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacguu 1080

uggauaggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47438
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92360

<400> 47438
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ugcuucuuua ugcaaauugc caucuugaua acaacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47439
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92371

<400> 47439
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47440
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92382

<400> 47440
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcggauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47441
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI92393

<400> 47441
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47442
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92404

<400> 47442
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaaguuau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47443
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92415

<400> 47443
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaauuucau gccuauauga 1410

<210> 47444
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92426

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47445
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92437

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47446
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92448

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47447
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92459

<400> 47447
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47448
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABI92470

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc agaaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47449
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92481

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47450
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92492

<400> 47450
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcuc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47451
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92503

<400> 47451
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagaagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaga gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47452
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92514

<400> 47452
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ugcuuccuug ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguac auacuagcaa acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc uguagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg agaugaugug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucugguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaccgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47453
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92525

<400> 47453
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augcccuaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47454
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92536

<400> 47454
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaaa gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gagcaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47455
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92547

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gagcaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47456
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92558

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaggccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaacccaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacagcauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47457
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92569

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug agccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47458
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92580

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caacaaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaggcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47459
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI92591

<400> 47459

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuugaga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agccucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaggcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47460

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABI92602

<400> 47460
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuuaauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagguaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaua ucaaucucau gccuauauaa 1410

<210> 47461
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABI92613

<400> 47461
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga uaaugaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47462
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92624

<400> 47462
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugau aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47463
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92635

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacc cccccccaaa caaccaagua augcuaugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac acuaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaacc uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguccccauu ccauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uaauauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47464
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92646

<400> 47464
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47465
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92657

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

uguuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47466
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92668

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgguccuga uaaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47467
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABI92679

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47468
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92701

<400> 47468
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

uguuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47469
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92712

<400> 47469

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcac 120

gaaugcaacu cccccccaaa caaccaagca augcugugug aaccaacaac aacagaaaga 180

aacacaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47470
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI92723

<400> 47470
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47471
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92734

<400> 47471
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47472
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92745

<400> 47472
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47473
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92756

<400> 47473
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua auacugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaagcuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugu guuuguauaa auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc auguugagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47474
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92767

<400> 47474
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagagaaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47475
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92778

<400> 47475
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

uguuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47476
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92789

<400> 47476
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaua acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47477
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92800

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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47478
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92811

<400> 47478
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugccccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaua acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47479
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92822

<400> 47479
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47480
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92844

<400> 47480
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaua acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47481
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI92855

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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaua acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47482
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92866

<400> 47482
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ugcuuccuua uucaaauugc aauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccucccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac cuuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuaguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaca auuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaauccuaa uuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaua ucaaucucau gccuauauaa 1410

<210> 47483
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92877

<400> 47483
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugccccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaua acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47484
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92888

<400> 47484
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugccccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaua acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47485
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92899

<400> 47485
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47486
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI92910

<400> 47486
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47487
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92921

<400> 47487
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47488
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92932

<400> 47488
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47489
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92943

<400> 47489
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaacauu caaagucauu 1140

gaaggcuggu ccaauccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47490
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92954

<400> 47490
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47491
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92965

<400> 47491
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac cgcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47492
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92976

<400> 47492
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47493
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92987

<400> 47493
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47494
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI92998

<400> 47494
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47495
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI93009

<400> 47495
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac gagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47496
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI93020

<400> 47496
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47497
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI93031

<400> 47497
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47498
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI93042

<400> 47498
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu ggcggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgauugg cgaggaguua cgcucagguu augaaaccuu uaaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47499
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI93053

<400> 47499
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aaggagguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47500
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI93064

<400> 47500
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau auagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaccgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauaccaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguucug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47501
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI93075

<400> 47501
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc uggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47502
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABI93086

<400> 47502
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47503
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI93097

<400> 47503
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcuc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47504
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI93108

<400> 47504
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcuc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaugauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47505
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI93119

<400> 47505
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac aacuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

aguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47506
<211> 1416
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI94584

<400> 47506
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aacuuauuga uaggaaucuc aaacgucgga uugaacguau cucuacaucu aaaggaaaaa 120

ggacccaaac aggaggagaa uuuaacaugc acgaccauua aucaaaacaa cacuacugua 180

guagaaaaca cauauguaaa uaauacaaca auaauuacca agggaacuga uuugaaaaca 240

ccaagcuauc ugcuguugaa caagagccug ugcaauguug aaggugggu cgugauagca 300

aaagacaaug caguaagauu uggggaaagu gaacaaauca uuguuaccag ggagccauau 360

guaucaugcg acccaacagg augcaaaaug uaugccuugc accaagggac uaccauuagg 420

aacaaacauu caaauggaac gauucaugac agaacagcuu ucagaggucu caucuccacu 480

ccauugggca cuccaccaac cguaaguaac agugacuuua ugugugugg auggucaagc 540

acaacuugcc augaugggau ugcuaggaug acuaucugua uacaaggaaa uaaugacaau 600

gcuacagcaa cgguuuauua caacagaagg cugaccacua ccauuaagac cugggccaga 660

aacauucuga ggacucaaga aucagaaugu gugugccaca auggcacaug ugcaguugua 720

augaccgacg gaucggcuag uagucaagcc uauacaaaag uaauguauuu ccacaaggga 780

uuaguaguua aggaggagga guuaagggga ucagccagac auauugagga augcuccugu 840

uauggacaca aucaaaaggu gaccugugug ugcagagaua acuggcaggg agcaaacagg 900

ccuauuauag aaauugauau gagcacauug gagcacacaa guagauacgu gugcacugga 960

auucucacag acaccagcag accuggggac aaaucuagug gugauuguuc caauccaaua 1020

acugggaguc ccggcguucc gggagugaag ggauucgggu uucuaaaugg ggauaacaca 1080

uggcuuggua ggaccaucag ccccagauca agaaguggau ucgaaauguu gaaaauaccu 1140

aaugcaggua cugaucccaa uucuagaaua gcagaacgac aggaaauugu cgacaauaac 1200

aauuggucag gcuauuccgg aagcuuuauu gacuauugga augauaacag ugaaugcuac 1260

aauccaugcu uuuacguaga guuaauuaga ggaagacccg aagaggcuaa auacguaugg 1320

ugggcaagua acagucuaau ugcccuaugu ggaagcccau ucccaguugg gucugguucc 1380

uuccccgaug gggcacaaau ccaauacuuu ucguaa 1416

<210> 47507
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABI95220

<400> 47507
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47508
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI95242

<400> 47508
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47509
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI95253

<400> 47509
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aguauaaugu ugcaaauagg gaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaaucacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag ugaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaacccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47510
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI95264

<400> 47510
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47511
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI95275

<400> 47511
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47512
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI95286

<400> 47512
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47513
<211> 1413
<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABI95297

<400> 47513

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag aacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuaaagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47514

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI95308

<400> 47514
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aagaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47515
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI96131

<400> 47515
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaaugggugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47516
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI96133

<400> 47516
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaaugggugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47517
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABI96136

<400> 47517
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaugga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggauug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47518
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09110

<400> 47518
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca gcagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47519
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09143

<400> 47519
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu ccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauuuau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47520
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09154

<400> 47520
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47521
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09165

<400> 47521
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47522
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09176

<400> 47522
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47523
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09198

<400> 47523

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47524
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABJ09209

<400> 47524
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagcca caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47525
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09220

<400> 47525
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcaaaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacgggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47526
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09231

<400> 47526
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47527
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09242

<400> 47527
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47528
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09253

<400> 47528
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aaggagguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47529
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09264

<400> 47529
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uaugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagagccu 360

uauguaucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaguu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uugugcuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47530
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09286

<400> 47530
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua agcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47531
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09308

<400> 47531
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc acgucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aaggagguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47532
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09319

<400> 47532
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau auagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaccgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauaccaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguucug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47533
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09330

<400> 47533
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua auaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccccg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47534
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABJ09341

<400> 47534
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auuguuagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47535
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09352

<400> 47535
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gguaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47536
<211> 1407
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09374

<400> 47536
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uucuucaugc aaauugccau cuugauaacu acuguaacau ugcauuuuaa gcaauaugaa 120

uucaacuccc ccccaaacaa ccaagugaug cugugugaac caacaauaau agaaagaaac 180

auaacagaga uaguguaucu gaccaacacc accauagaga aggaaauaug ccccaaacua 240

gcagaauaca ggaauugguc aaagccgcaa ugugacauua caggauuugc accuuuuucu 300

aaggacaauu cgauuaggcu uuccgcuggu ggggacaucu gggugacaag agaaccuuac 360

gugucaugcg auccugacaa guguuaucaa uuugcccuug gacagggaac aacacuaaac 420

aacgugcauu caaaugacac aguacaugau aggaccccuu aucggacccu auugaugaau 480

gaguuaggug uuccauuuca ucuggggacc aagcaagugu gcauagcaug guccagcuca 540

aguugucacg auggaaaagc auggcugcau guuuguguaa cgggggauga uaaaaaugca 600

acugcuagcu ucauuuacaa ugggaggcuu guagauagua uuguuucaug guccaaaaaa 660

auccucagga cccaggaguc agaaugcguu uguaucaaug gaacuuguac aguaguaaug 720

acugauggga gugcuucagg aaaagcugau acuaaaauac uauucauuga ggaggggaaa 780

aucguucaua cuagcacauu gucaggaagu gcucagcaug ucgaggagug cuccuguuau 840

ccucgauauc cuggugucag augugucugc agagacaacu ggaaaggcuc caauaggccc 900

aucguagaua uaaacauaaa agauuauagc auuguuucca guuaugugug cucaggacuu 960

guuggagaca cacccagaaa aaacgacagc uccagcagua gccauugcuu ggauccuaac 1020

aaugaagaag guggucaugg agugaaaggc ugggccuuug augauggaaa ugacgugugg 1080

augggaagaa cgaucagcga gaaguuacgc ucaggauaug aaaccuucaa agucauugaa 1140

ggcuggucca acccuaauuc caaauugcag auaaauaggc aagucauagu ugacagaggu 1200

aauagguccg guuauucugg uauuuucucu guugaaggca aaagcugcau caaucggugc 1260

uuuuaugugg aguugauaag gggaaaaaaa gaggaaacug aagucuugug gaccucaaac 1320

aguauuguug uguuuugugg caccucaggu acauauggaa caggcucaug gccugauggg 1380

gcggacauca aucucaugcc uauauaa 1407

<210> 47537
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ09385

<400> 47537
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagcca caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47538
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16590

<400> 47538
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47539
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16601

<400> 47539
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua agcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47540
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16612

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aguuuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacagucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47541
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16623

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc acacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua agcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47542
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16634

<400> 47542
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac aucaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc auguugagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47543
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16656

<400> 47543
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47544
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16667

<400> 47544
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47545
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16678

<400> 47545
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cuuagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47546
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16689

<400> 47546
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47547
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16700

<400> 47547
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaaag aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47548
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16711

<400> 47548
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgcg 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaucuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47549
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16733

<400> 47549
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aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaua uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacacccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47550
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16744

<400> 47550
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47551
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16755

<400> 47551
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47552
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16766

<400> 47552
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47553
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16777

<400> 47553
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47554
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ16788

<400> 47554
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47555
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ53441

<400> 47555
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau gcucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuauga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47556
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABJ53452

<400> 47556
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47557
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ53463

<400> 47557
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47558
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ53474

<400> 47558
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47559
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ53485

<400> 47559
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcacccuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacucuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47560
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ53496

<400> 47560
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47561
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ53507

<400> 47561
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau gagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua uuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47562
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABJ53518

<400> 47562
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aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauuuaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47563
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK39965

<400> 47563
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa uaaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aacgaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47564
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK39976

<400> 47564
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47565
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK39987

<400> 47565
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauagaaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47566
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK39998

<400> 47566
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47567
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABK40020

<400> 47567

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggaga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47568

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40031

<400> 47568
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aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47569
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40042

<400> 47569
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aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47570
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40053

<400> 47570
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aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacacccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47571
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40064

<400> 47571
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47572
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40078

<400> 47572
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47573
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40513

<400> 47573
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47574
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40538

<400> 47574
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47575
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40549

<400> 47575
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuauaaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47576
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40560

<400> 47576
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47577
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40571

<400> 47577

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47578
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABK40582

<400> 47578
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacucaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47579
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40593

<400> 47579
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucgcaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuauaaaa uaggauacau cugcaguggg 960

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aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47580
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40604

<400> 47580
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47581
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABK40615

<400> 47581
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47582
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40626

<400> 47582
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47583
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40648

<400> 47583
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guauuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47584
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40659

<400> 47584
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc gugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agacagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cucaaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug cuggaauccu 1020

aacaaugaga aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47585
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40681

<400> 47585
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaag caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

cuggcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa gguugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucugguu augaaaccuu caaaguuauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47586
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40692

<400> 47586
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguugggaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac aguaaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ccccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47587
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40703

<400> 47587
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47588
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40714

<400> 47588
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47589
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40725

<400> 47589
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggaggga 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47590
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40736

<400> 47590
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47591
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK40747

<400> 47591
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug agccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47592
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK79951

<400> 47592
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47593
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK79973

<400> 47593
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aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacacccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47594
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK79984

<400> 47594
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47595
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK79995

<400> 47595
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47596
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 47596
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47597
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47598
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80050

<400> 47598
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

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ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47599
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80061

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47600
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80072

<400> 47600
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47601
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80083

<400> 47601
augaauccaa aucaaaagau aauaacgauu ggcucaguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggaaggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47602
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80094

<400> 47602
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaucau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47603
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80105

<400> 47603
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47604
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80138

<400> 47604
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaacugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47605
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80149

<400> 47605
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagca augcuguaug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47606
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80160

<400> 47606
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagca augcuguaug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47607
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80171

<400> 47607
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuuuuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47608
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80182

<400> 47608
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgaugggaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47609
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80193

<400> 47609
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47610
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABK80204

<400> 47610
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaacga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgcg 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47611
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80215

<400> 47611
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47612
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80226

<400> 47612
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua gacaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47613
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80237

<400> 47613
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu caaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaccgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47614
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80259

<400> 47614
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ugcuuccuua uucaaauugc aauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac cuuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuaguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaauccuaa uuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaua ucaaucucau gccuauauaa 1410

<210> 47615
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80270

<400> 47615
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47616
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80281

<400> 47616
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47617
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80292

<400> 47617
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

aguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47618
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80303

<400> 47618
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcuguaug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggaacgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47619
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABK80314

<400> 47619
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcgacu cccccccaaa caaccaagua augcuguaug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47620
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL07021

<400> 47620
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaauaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaauguaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aaugaaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaccaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aaugggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

aguagcauau ccuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47621
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL07032

<400> 47621
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaguu 60

aguuuaaugu uacaaauugg gaacaugguc ucaacauggg ucagucauuc aauucagaca 120

gggaaucaau accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47622
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABL31746

<400> 47622
augaauccaa aucagaagau aauaaccauu ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucucacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg ggccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caacaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aaaaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucu 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacug acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagacug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47623
<211> 1350

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL31757

<400> 47623
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47624
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL31768

<400> 47624
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47625
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67168

<400> 47625
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguaac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccc 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47626
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67179

<400> 47626
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47627
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67190

<400> 47627
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guguggcaau cggaauaauu 60

aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacacccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47628
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67201

<400> 47628
augaauccaa aucaaaagau aauaacgauu agcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47629
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67212

<400> 47629
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aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47630
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67256

<400> 47630
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47631
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67267

<400> 47631
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47632
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67278

<400> 47632
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47633
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67289

<400> 47633

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcuguaug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47634
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABL67300

<400> 47634
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47635
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67311

<400> 47635
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcguc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac aguuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47636
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67322

<400> 47636
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac acuaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47637
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67333

<400> 47637
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua auuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47638
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABL67344

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aagauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47639
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67355

<400> 47639
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga aaaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47640
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67366

<400> 47640
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuagaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47641
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67377

<400> 47641
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ugcuuccuua uucaaauugc aauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac cuuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuaguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gacacuaaaa uauuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaauccuaa uuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggauc ucaaucucau gccuauauaa 1410

<210> 47642
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67388

<400> 47642
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu caggugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47643
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67399

<400> 47643
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47644
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABL67410

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgacggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47645
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABL67421

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu cuaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47646
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67772

<400> 47646
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agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac acaaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguauac 240

aguaaggaca auaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug aaguaucaaa uaggauauau augcagugga 900

gucuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaacaaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47647
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABL67783

<400> 47647
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gggaaucaac acaaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacagu 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccucu 960

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gggaaucaac acaaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuagau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccuau 960

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gggaaucaac acaaagcuga accaaucagc aauacuaauc uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uugauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguugu aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaaguc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggagcaggua guuguggucc gguguccucu 960

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agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

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<212> RNA
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agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac acaaagcuga accaaucagc aauacuaauc uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uugauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguugu aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaaguc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcua uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggagcaggua guugugguсc gguguccucu 960

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gcugaguugc cauucaccau ugacaaguag 1350

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<212> RNA
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agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac acaaagcuga accaaucagc aauacuaauc uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguugu aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaaguc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagcgcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gagcuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuu uugcuuuacu 660

guaaugacug acggaccaag caauggucag gcaucacaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggagcaggua guuguggucc gguggccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

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agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

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gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

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gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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aaucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

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gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

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<212> RNA
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

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gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

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uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47655
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABM22062

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcuguaug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggaga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu uaauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

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uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ucuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47657
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABM22084

<400> 47657

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47658
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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<400> 47658
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagca augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaca ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47659
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22106

<400> 47659
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47660
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22117

<400> 47660
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47661
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22128

<400> 47661
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ugcuuccuua uucaaauugc aauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac cuuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuaguuc gugguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaauccuaa uuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaua ucaaucucau gccuauauaa 1410

<210> 47662
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22139

<400> 47662
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagu 540

ucaaguuguc acgacggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc agaaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47663
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22150

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccucccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccgaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucgucc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47664
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22161

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47665
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22172

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acacuggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

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ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47666
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22183

<400> 47666
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47667
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22194

<400> 47667
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg ucagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaaa gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agaaucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuagacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47668
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22205

<400> 47668
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47669
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABM22216

<400> 47669
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47670
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22227

<400> 47670
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47671
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22238

<400> 47671
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47672
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22271

<400> 47672
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauuguaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga gaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaaa 780

gggagaguua cuaaaucaau agaguugggu gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47673
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22282

<400> 47673
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47674
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22304

<400> 47674
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47675
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22315

<400> 47675
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47676
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22326

<400> 47676
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47677
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22337

<400> 47677
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47678
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22348

<400> 47678
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47679
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22359

<400> 47679
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47680
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM22370

<400> 47680
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47681
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM66867

<400> 47681
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47682
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM66900

<400> 47682
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47683
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM66911

<400> 47683
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

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ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47684
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM66922

<400> 47684
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47685
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABM66933

<400> 47685
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47686
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM66944

<400> 47686
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47687
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM66955

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47688
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM66966

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47689
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM66977

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47690
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABM66988

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47691
<211> 1410

<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABM66999

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

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aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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neuraminidase__InfluenzaA__ABM67010

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

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gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

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aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<211> 1410
<212> RNA
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neuraminidase__InfluenzaA__ABM67021

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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

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aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47694
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM67054

<400> 47694
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agucuaaugu ugcaaauagg aaauaugauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaauuggca uggcucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47695
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM68048

<400> 47695
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agcuuaaugu uacaaauugg gaacauaauc ucaauaugga ucagucauuc aauucaaaca 120

gggaaucaau gccaagcugg accaaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagucg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccgguga aaucacgugu gugugcaggg auaguuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccccu 960

aacggggcau auggaguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47696
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM68049

<400> 47696
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agcuuaaugu uacaaauugg gaacauaauc ucaauaugga ucagucauuc aauucagaca 120

gggaaucaau gccaagcuga accaaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaugggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccgguga aaucacgugu gugugcaggg auaguuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccccu 960

aacggggcau auggaguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47697
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM90436

<400> 47697
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaauguaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aaugaaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacuuacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

aguagcauau cuuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47698
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM90447

<400> 47698
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaauguaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aaugaaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacuuacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

aguagcauau cuuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47699
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABM90458

<400> 47699
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaauguaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aaugaaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacuuacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

aguagcauau cuuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47700
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM90469

<400> 47700
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaauguaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aaugaaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacuuacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 47701
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM90491

<400> 47701
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucaaaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaauguaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aaugaaaaaa 720

ggaaaaguga ucaaaucagu cgaauuggau gcuacuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaccaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

aguagcauau cuuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47702
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM90502

<400> 47702
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucaaaaa 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguucc aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaauguaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aaugaaaaaa 720

ggaaaaguga ucaaaucagu cgaauuggau gcuacuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggcucaaau 840

aggccauggg uauccuucaa ucaaaauuug gaguaccaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

aguagcauau cuuuuugugg uguaaauagu gacacuguga gcuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47703
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM90524

<400> 47703
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

guuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47704
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM90535

<400> 47704
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

guuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47705
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABM90546

<400> 47705
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga aucaaucagc aauacuaacc cucuuacuga gaaagcugug 180

guuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggcuguacac 240

aguaaggaca acaauauaag gaucgguuca aagggggaug uguuuguuau uagagagccg 300

uucaucucau gcucccaccu ggaaugcaga acuuucuucu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

gaggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guuugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggccc gauguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaacuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguga guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 47706
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50759

<400> 47706
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggcag gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagug gaaguuuugu ucaacauccu gagcuaacag gauuggacug uauaaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47707
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50770

<400> 47707
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcacuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47708
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50903

<400> 47708
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cacuagccgg caauucaucu cuuuguccug uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc uaacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg accagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aaacgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccaag uaaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaaaauua cuaaaucaau agaguuggau gcacccaauu cucacuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu cuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucau ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggaguagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47709
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50920

<400> 47709
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47710
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50931

<400> 47710
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agucuaauau ugcaaauagg aaauauuguu ucaauaugga ucagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauaucaac aacacuaaug uuguugcugg acaggacaca 240

acuucagugg cauuagccgg caauucaucu cuuuguccua ucaugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggggaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaacgg aaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucucccuac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgaa uaaugggccu gccucguaca aaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acgccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggu 960

guuuuuggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaagagga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaaauu cuuagugaaa caggauguag uggcaauuac ugauugguca 1200

ggguacagcg gaagcuucgu ucaacauccu gaacuaacag gauuagauug uaugaggccu 1260

ugcuucuggg uugaauugau cagaggacga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau ggugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47711
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50943

<400> 47711
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agucuaauau ugcaaauagg aaauauuguu ucaauaugga ucagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauaucaac aacacuaaug uuguugcugg acaggacaca 240

acuucagugg cauuagccgg caauucaucu cuuuguccua ucagugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaacgg aaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucucccuac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgaa uaaugggccu gccucguaca aaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acgccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggu 960

guuuuuggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaagagga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaaauu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaagcuucgu ucaacauccu gaacuaacag gauuggauug uaugaggccu 1260

ugcuucuggg uugaauugau cagaggacga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggagugaau ggugauacug caaauuggguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47712
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50954

<400> 47712
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga gaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47713
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50965

<400> 47713
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47714
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABN50976

<400> 47714
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47715
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN50987

<400> 47715
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ccaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguug cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47716
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABN50998

<400> 47716
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47717
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51013

<400> 47717
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccuuug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47718
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51024

<400> 47718
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cacugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47719
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51035

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47720
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51046

<400> 47720
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47721
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51069

<400> 47721
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agucugauau ugcaaauagg aaauauuauu ucaauauggg ccagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cuguaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagaugg uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagggggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47722
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51080

<400> 47722
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaacuauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa auggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugacugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47723
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51091

<400> 47723
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau gggaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47724
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51102

<400> 47724
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accagacaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47725
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51113

<400> 47725
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagcca caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggggugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47726
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51124

<400> 47726
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagagucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggaccug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47727
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABN51135

<400> 47727

augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaucaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47728

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51146

<400> 47728
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaaa uaa 1413

<210> 47729
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN51157

<400> 47729
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucuaaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucacuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gaaacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47730
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN59393

<400> 47730
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cacugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47731
<211> 1365
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN59415

<400> 47731
augaauccaa aucagaaaau aauaaccauu ggaucaaucu gucugguagu cggacuaauu 60

agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaaacauca uuaccuauaa aaauagcacc 180

uggguaaagg acacaacuuc agugauauua accggcaauu caucucuuug ucccauccgu 240

gggugggcua uauacagcaa agacaauagc auaagaauug guuccaaagg agacguuuuu 300

gucauaagag agcccuuuau uucauguucu cacuuggaau gcaggaccuu uuuucugacc 360

caaggugccu uacugaauga caagcauuca agugggacug uuaaggacag aagcccuuau 420

agggccuuaa ugagcugccc ugucggugaa gcuccguccc cguacaauuc aagauuugaa 480

ucgguugcuu ggucagcaag ugcaugucau gauggcaugg gcuggcuaac aaucggaauu 540

ucagguccag auaauggagc aguggcugua uuaaaauaca acggcauaau aacugaaacc 600

auaaaaaguu ggaggaagaa aauauugagg acacaagagu cugaaugugc cuguguaaau 660

gguucauguu uuacuauaau gacugauggc ccgagugaug ggcuggccuc guacaaaauu 720

uucaagaucg aaaaggggaa gguuacuaaa ucaauagagu ugaaugcacc uaauucucac 780

uaugaggaau guuccuguua cccugauacc ggcaaaguga ugugugugug cagagacaau 840

uggcaugguu cgaaccggcc augggugucu uucgaucaaa accuggauua ucaaauagga 900

uacaucugca gugggguuuu cggugacaac ccgcgucccg aagauggaac aggcagcugu 960

gguccagugu auguugaugg agcaaacgga guaaagggau uuucauauag guaugguaau 1020

gguguuugga uaggaaggac caaaagucac aguuccagac augggguuuga gaugauuugg 1080

gauccuaaug gauggacaga gacugauagu aaguucucug ugaggcaaga uguuguggca 1140

augacugauu ggucagggua uagcggaagu uucguucaac auccugagcu gacagggcua 1200

gacuguauga ggccgugcuu cuggguugaa uuaaucaggg gacgaccuaa agaaaaaaca 1260

aucuggacua gugcgagcag cauuucuuuu uguggcguga auagugauac uguagauugg 1320

ucuuggccag acggugcuga guugccauuc agcauugaca aguag 1365

<210> 47732
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABN59426

<400> 47732
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg gaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47733
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32659

<400> 47733
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47734
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32670

<400> 47734
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ugcuucuuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac cuuauugaug 480

aaugaguugg guguuccauu ucauaugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47735
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32681

<400> 47735
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguugggaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac aguaaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ccccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47736
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32695

<400> 47736
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagug 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cucggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47737
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32754

<400> 47737
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47738
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABO32765

<400> 47738
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47739
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32778

<400> 47739
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ugcuuccuua uucaaauugc aauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac cuuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuaguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaauccuaa uuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaua ucaaucucau gccuauauaa 1410

<210> 47740
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32793

<400> 47740
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ugcuucuuua ugcaaauugu caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaaacu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47741
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32806

<400> 47741
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47742
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32819

<400> 47742
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47743
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32830

<400> 47743
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47744
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32841

<400> 47744
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47745
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32852

<400> 47745
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47746
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32863

<400> 47746
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47747
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32874

<400> 47747
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cacugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47748
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32885

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cacugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47749
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABO32896

<400> 47749

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47750

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32907

<400> 47750
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47751
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32918

<400> 47751
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaac augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcacccuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguguaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacucuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47752
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32929

<400> 47752
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaac augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcacccuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc auggucuaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacucuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47753
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32940

<400> 47753
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaac augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcacccuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc auggucuaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacucuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47754
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32951

<400> 47754
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

aguuuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47755
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABO32962

<400> 47755
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaaguaaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uguuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaaacgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gauaaaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaga caggauguug uggcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaga auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47756
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32973

<400> 47756
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47757
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32984

<400> 47757
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47758
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO32995

<400> 47758
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucaccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47759
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO33009

<400> 47759

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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg gauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuguua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

ugcccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47760
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABO33039

<400> 47760
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua agcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47761
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO33050

<400> 47761
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47762
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO33061

<400> 47762
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47763
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABO33072

<400> 47763
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcggcu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47764
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO37991

<400> 47764
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acacuggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggagugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47765
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38013

<400> 47765
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agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uaugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

gggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47766
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38024

<400> 47766
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga gaacaacacc 180

ugggugaauc acacguaugu uaauauuaac aacacuaaua uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauaucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcu gccucguaca aaaucuucaa gaucgaaaaa 780

gggaaaguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gaugggggcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagaugg uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47767
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38035

<400> 47767
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aacaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagguga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggaaug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47768
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38046

<400> 47768
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47769
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38068

<400> 47769
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cucuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47770
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABO38079

<400> 47770
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47771
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38090

<400> 47771
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gaaaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47772
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38101

<400> 47772
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaagg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcca gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auaucagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47773
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38233

<400> 47773
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ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcaaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaagc auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggaua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucuaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugcuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauauagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaugaguca cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47774
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38244

<400> 47774
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugcaacaaua 60

ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu ggcggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg aaccacacua 420

aacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggca ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgauugg cgaggaguua cgcucagguu augaaaccuu uaaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 47775
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38255

<400> 47775
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cacugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47776
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38277

<400> 47776
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47777
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38288

<400> 47777
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaac augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcacccuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc auggucuaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacucuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47778
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38299

<400> 47778
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ugcuucauca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

gcaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uacccucgau auccugacgu cagauguacc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuacgu gugcucagga 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaaa gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaaguug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47779
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38310

<400> 47779
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccacgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacggcgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaaa gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagaauca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47780
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38332

<400> 47780
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaaugauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauacag acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47781
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38343

<400> 47781
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacuuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuggu cagaggacga ccuagagagg ggacaacggu cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47782
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38354

<400> 47782
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agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaaacauca uuaccuauaa aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg acaggacaca 240

acuucaguga uauuaaccgg caauucaucu cuuuguccca uccgugggug ggcuauauac 300

agcaaagaca auagcauaag aauugguucc aaaggagacg uuuuugucau aagagagccc 360

uuuauuucau guucucacuu ggaaugcagg accuuuuuuc ugacccaagg ugccuuacug 420

aaugacaggc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

ugcccugucg gugaagcucc gucccguac aauucaagau uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucagg uccagauaau 600

ggagcagugg cuguauuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagaaaauau ugagaacaca agagucugaa ugugccugug uaaaugguuc auguuuuacu 720

auaaugacug auggcccgag uaaugggcug gccucguaca aaauuuucaa gaucgagaag 780

gggaagguua cuaaaucaau agaguugaau gcaccuaauu cucacuacga ggaauguucc 840

uguuacccug auaccggcaa agugaugugu gugugcagag acaauuggca ugguucgaac 900

cgaccauggg ugucuuucga ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaacaggca gcugugguсc aguguauguu 1020

gauggagcaa acggaguaaa gggauuuuca uauagguaug guaauggugu uuggauagga 1080

aggaccaaaa guaacaguuc cagacauggg uuugagauga uuugggaucc uaauggaugg 1140

acagagacug auaguaaguu cucugugaga caagauguug uggcaaugac ugauugguca 1200

gggguauagcg gaaguuucgu ucaacauccu gagcuaacag ggcuagacug uaugaggccg 1260

ugcuucuggg uugaauugau caggggacga ccuaaagaaa acacaaucug gacuaguggg 1320

agcagcauuu cuuuuugugg cgugaauagu gauacuguag auuggucuug gccagacggu 1380

gcugaguugc cauucaccau ugacaaguag 1410

<210> 47783
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38365

<400> 47783
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agucuaauau ugcaaauggg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuucc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuuuuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47784
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38376

<400> 47784
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agccuaauau ugcaaauagg gaauauuauc ucaauaugga ucagccauuc aauucaaacu 120

ggaagucaaa accauacugg aacuugcaac caaagcauca uuaccuauaa aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggauaca 240

acuucaguga uauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaua auggcguaag aauugguucc aaaggagaug uuuuugucau aagagaaccc 360

uuuauuucau guucucacuu ggaaugcagg accuuuuuuc ugacccaagg cgcccuguug 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

ugcccugucg gugaagcucc gucccguac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguguuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aaggaaauau ugagaacaca agagucugaa ugugccugcg uaaaugguuc auguuucacu 720

auaaugaccg acggcccgag ugguggccg gccucguaca aaauuuucaa gaucgagaag 780

gggaagguua cuaaaucaau agaauuggau gcaccuaauu cucacuauga ggaauguucc 840

uguuacccug auaccggcaa ggugaugugu gugugcagag acaauuggca cgguucgaac 900

cgaccauggg ugucuuucga ucaaaaucug gauuaucaaa ugggcuacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca acuguggucc aguguauguu 1020

gauggagcaa acggaguaaa gggauuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaguuc cagacagggg uuugagauga uuugggaucc caaugggugg 1140

acagagacug auaguaauuu cuuugugaaa caagauguag uggcagugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag ggcuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau caggggacgg ccuaaagaaa aaacaaucug gaccaguggg 1320

agcagcauuu cuuuuugugg cgugaauagu gauacuguag auuggucuug gccagacggu 1380

gccgaguugc cauucaccau ugacaaguag 1410

<210> 47785
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38387

<400> 47785
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agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagcauca uuaccuauaa aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaaug uuguugcugg acaggacaca 240

acuucaguga uauuaaccgg caauucaucu cuuuguccca uccgugggug ggcuauauac 300

agcaaagaca auggcauaag aauugguucc aaaggagacg uuuuugucau aagagagccu 360

uuuauuucau guucucacuu ggaaugcagg accuuuuuuc ugacccaagg cgccuuacug 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

ugcccugucg gugaagcucc gucccguac aauucaagau uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagauaau 600

gaagcagugg cuguauuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagaaaauau ugagaacaca agagucugaa ugugccugug uaaaugguuc auguuuuacu 720

auaaugaccg auggcccgag ugaugggcug gccucguaca aaauuuucaa gaucgagaag 780

gggaagguua cuaaaucaau agaguugaau gcaccuaauu cucacuacga ggaauguucc 840

uguuacccug auaccggcaa agugaugugu gugugcagag acaauuggca cgguucgaac 900

cgaccauggg ugucuuucga ucaaaaccug gauuaucaaa uaggauacau uugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaacaggca gcuguggucc aguguauguu 1020

gauggagcaa acggaguaaa gggauuuuca uauagguaug guaauggugu uuggauagga 1080

aggaccaaaa guaccaguuc cagacauggg uuugagauga uuugggaucc uaauggaugg 1140

acagagacug auaguaaguu cucugugaga caagauguug uggcaaugac ugauugguca 1200

ggauauagcg gaaguuucgu ucaacauccu gagcuaacag ggcuagacug uaugaggccu 1260

ugcuucuggg uugaauuaau caggggacaa ccuaaagaaa aaacaaucug gacuaguggg 1320

agcagcauuu cuuuuugugg cgugaauagu gauacuguag auuggucuug gccagacggu 1380

gcugaguugc cauucaccau ugacaaguag 1410

<210> 47786
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38398

<400> 47786
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agucuaauau ugcaaauagg aaauauuguu ucaauaugga ucagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauaucaac aacacuaaug uuguugcugg acaggacaca 240

acuucagugg cauuagccgg caauucaucu cuuuguccua ucagugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcagg aacuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg aaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucucccuac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgaa uaauggaccu gccucguaca aaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acgccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggu 960

guuuuuggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaagagga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaaauu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaagcuucgu ucaacauccu gaacuaacag gauuggauug uaugaggccu 1260

ugcuucuggg uugaauugau cagaggacga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau ggugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47787
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38420

<400> 47787
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uucuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cucuaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47788
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABO38715

<400> 47788
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagac augccccaaa 240

guaguggaau acagaaguug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagagccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagcgcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aauaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua ggcaagucau aguugacagc 1200

gauaaucggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47789
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO38726

<400> 47789
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagac augccccaaa 240

guaguggaau acagaaguug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagagccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagcgcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aauaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua ggcaagucau aguugacagc 1200

gauaaucggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47790
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO44049

<400> 47790
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugauuugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47791
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO44060

<400> 47791
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuaaaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau acccugacgu cagauguauc ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 47792
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABO44071

<400> 47792
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uguuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caagaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47793
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO44082

<400> 47793
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ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47794
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO44093

<400> 47794
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguagaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gugauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguugcc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuuuag acauaaguau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaacug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaaucg caggucaaua gacaggucau aguggacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ucacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguucug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47795
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO44104

<400> 47795
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggag acacaccuag aaacgacgac agaucuagca auagcaauug cagaaauccu 1020

aacaaugaga aagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaaucg cagaucaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguucug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 47796
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO44126

<400> 47796
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agucuaauau uacaaauagg aaauauuguu ucaauaugga ucagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauaucaac aacacuaaug uuguugcugg acaggacaca 240

acuucagugg cauuagccgg caauucaucu cuuuguccua ucaguggguug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaacgg aaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucucccuac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgaa uaaugggccu gccucguaca aaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguugaau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acgccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggu 960

guuuuuggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaagagga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaaauu cuuagugaaa caggauguag uggcaauuac ugauugguca 1200

ggguacagcg gaagcuucgu ucaacauccu gaacuaacag gauuggauug uaugaggccu 1260

ugcuucuggg uugaauugau cagaggacga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau ggugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47797
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52228

<400> 47797
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

aguuugauau ugcaaauugg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaaaau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47798
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52239

<400> 47798
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuucauca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

gcaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuacgu gugcucagga 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaaa gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaaguug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47799
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52250

<400> 47799
augaauccaa aucaaaagau aauaacaauu ggcucugccu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggag acacaccuag aaacgacgac agaucuagca auagcaauug cagaaauccu 1020

aacaaugaga aagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguucug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 47800
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52261

<400> 47800
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuacga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc ugauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uauaaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47801
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52283

<400> 47801
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaacaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauaugga uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauaacacc 180

uggguaaauc aaacauaugu uaauauuagc aacaccaacg uuguugcugg aaaggacaca 240

acuucaauga uauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag gauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau gcucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaacgg gaccguuaaa gacagaagcc cuuauagggc cuuaaugagc 480

uguccuaucg gugaagcucc gucuccguac aauucaagau uugaaucggu ugcuugguca 540

gcgagugcau gucaugaugg caugggcugg cuaacuaucg gaauuucugg uccagaugau 600

ggagcagugg cuguauuaaa auacaauggc auaauaacug aaaucauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgaaaag 780

gggaagauua cuaaaucaau agaguuggau gcaccuaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcaa agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccauggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug gugauggugu uuggauagga 1080

aggacuaaaa guaacaguuc cagaaagggg uuugagauga uuugggaucc uaaugggugg 1140

acagauaccg augauaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguauagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac aauugacaug uag 1413

<210> 47802
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52294

<400> 47802
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua agcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47803
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABO52316

<400> 47803

augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gagugcgacu cccccgcgaa caaucaaaua augccgugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac aucaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccuag cagguguuau caauuugcac uugggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uacccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca auagcuauug ccggaauccu 1020

aacaaugaga aagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gggcaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47804

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52327

<400> 47804
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caggcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguuaau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47805
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52338

<400> 47805
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauaggaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguguaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auauuagccc auugucagga agugcucaac auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47806
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52349

<400> 47806
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuuccuca ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacguaacag agauagugua uuugacuaac accaccauag agaaagaaau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg acuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc auggucuaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gacacuaaaa uacuauucau ugaagagggg 780

aaaauuauuc auauuagccc auugucaggg agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaua acuggaaagg cucuaauagg 900

cccgucguag auauaaaauau gagagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

aauaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggacauca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47807
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52360

<400> 47807
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguggaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47808
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52371

<400> 47808
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caggcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagaaau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacagcua gcuucauuua ugacgggaag cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggug acacacccag aaacaacgac agaucuggca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucaa caaggauuua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguuaau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47809
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABO52800

<400> 47809
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggguugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acggauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa ggacaacaau cuggacuagu 1320

gguagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47810
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49220

<400> 47810
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47811
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49319

<400> 47811
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauaacacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga uauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuaucg gugaagcucc gucuccguac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcaccuaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcaa agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccauggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaguuc cagaaagggg uuugagauga uuugggaucc uaaugggugg 1140

acagauaccg augguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47812
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49330

<400> 47812
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agccuaauau ugcaaauagg gaauauuauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagcauca uuaccuauaa aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaaggcaca 240

acuccaguga uauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaua acggcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauuucau guucucacuu ggaaugcagg acuuuuuuuc ugacccaagg cgcccuguug 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuugaugagc 480

ugcccugucg gugaagcucc gucccccguac aauucaaggu uugaaucggu ugcuugguca 540

gcaugugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

gaagcagugg cuguguuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagaaaauau ugagaacaca agagucugaa ugugucugug uaaaugguuc auguuuuacu 720

auaaugaccg acggcccgag ugaugggccg gccucguaca aaauuuucaa gaucgagaag 780

gggaagguua cuaaaucaau agaguuggau gcaccuaauu cucacuacga ggaauguucc 840

uguuacccug auaccggcaa ggugaugugu gugugcagag acaauuggca cgguucgaac 900

cgaccauggg ugucuuucga ucaaaaucug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc gguguauguu 1020

gauggagcaa acggaguaaa gggauuuuca uacagguaug guaauggugu uuggauagga 1080

aggauuaaaa guaacaguuc cagacagggg uuugagauga uuugggaucc uaaugggugg 1140

acagagacug auaguaguuu cuuugugaaa caagauguag uggcuaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag ggcuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau caggggacga ccuaaagaaa aaacaaucug gacuaguggg 1320

agcagcauuu cuuuuugugg cgugaauagu gauacuguag auuggucuug gccagacggu 1380

gccgaauugc cauucaccau ugacaaguag 1410

<210> 47813
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49352

<400> 47813

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaacc aaacauaugu caacauuaac aacacuaacg uuguugcugg aaaggacaca 240

accucagugg cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggguugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugacggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acggauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa ggacaacaau cuggacuagu 1320

gguagcagca uuucuuuuug uggcguggau agugauacug caaauugguc cuggccagac 1380

ggugccgagc ugccauucac cauugacaag uag 1413

<210> 47814
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABP49363

<400> 47814
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agucuaauau ugcaaauagg aaauauuguu ucaauaugga ucagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauaucaac aacacuaaug uuguugcugg acaggacaca 240

acuucagugg cauuagccgg caauucaucu cuuuguccua ucagugggug ggcuauauac 300

agcaaagaca acagcauaag aauuggcucc aaaggggaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaacgg aaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucucccuac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgaa uaaugggccu gccucguaca aaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acgccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggu 960

guuuuuggug acaauccgcg ucccaaagau ggaaaaggca gcuguggucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaagagga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaaauu cuuagugaaa caggauguag uggcaauuac ugauuggucg 1200

ggguacagcg gaagcuucgu ucaacauccu gaacuaacag gauuggauug uaugaggccu 1260

ugcuucuggg uugaauugau cagaggacga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau ggugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47815
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49374

<400> 47815
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47816
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49385

<400> 47816
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guguggcaau cggaauaauu 60

aaucuaacau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuauccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47817
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49396

<400> 47817
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgucgau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 47818
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49407

<400> 47818
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

agugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggaga cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaucug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47819
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49418

<400> 47819
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47820
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49429

<400> 47820
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgua 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47821
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49440

<400> 47821
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ugcuuccuca uucagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucacaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggccaaua gacaggucau aguugacaaa 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47822
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49451

<400> 47822
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucaccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47823
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49462

<400> 47823
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ugcuucauca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

gcaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47824
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49473

<400> 47824
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuac caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47825
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABP49495

<400> 47825
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ugcuuccuca ugcagauugc cauccuggua accacuguaa cauugcauuu caagcaauau 120

gagugcgacu ccccagcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auacuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggagagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguggggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47826
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49506

<400> 47826
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ucuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accagacaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggggа ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca auggaaccug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47827
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABP49517

<400> 47827
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggggа ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47828
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ01314

<400> 47828
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaacaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauaacacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaaug uuguugcugg aaaggacaca 240

acuucaauga uauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau gcucucacuu ggaaugcaga accuuuuucc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaaa gacagaagcc cuuauagggc cuuaaugagc 480

uguccuaucg gugaagcucc gucuccguac aauucaagau uugaaucggu ugcuugguca 540

gcgagugcau gucaugaugg caugggcugg cuaacuaucg gaauuucugg uccagaugau 600

ggagcagugg cuguauuaaa auacaacggc auaauaacug aaaucauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcaccuaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcaa agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccauggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaguuc cagaaagggg uuugagauga uuugggaucc uaaugggugg 1140

acagauaccg augguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguauagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

uguuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47829
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ01325

<400> 47829
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacaggagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggcag gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 47830
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ01336

<400> 47830
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu auggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47831
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ01347

<400> 47831
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47832
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ01358

<400> 47832
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcaacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag aaaaagagau uugccccgaa 240

guaguagaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gugauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguugcc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuugaggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaaaugcauc gggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuuuag acauaaguau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaacug cagggauccu 1020

aacaaugaga gagggaaucc gggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaaucg caggucaaua gacaggucau aguagacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ucacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguucug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47833
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ01369

<400> 47833
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacaaua 60

ugcuucguca ugcagauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcgacu ccccagcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auacuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuucg gguaccuaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47834
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ44386

<400> 47834
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa augaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47835
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ44408

<400> 47835
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47836
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ44419

<400> 47836
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agucuaauau ugcaaauagg aaauauuguu ucaauaugga ucagccacuc aauccaaaau 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauaucaac aacacuaaug uuguugcugg acaggacaca 240

acuucagugg cauuagccgg caauucaucu cuuuguccua ucagugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaacgg aaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc aucucccuac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgaa uaaugggccu gccucguaca aaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acgccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggu 960

guuuuuggug acaauccgcg ucccaaagau ggaaaaggca gcugugguсc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaagagga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaaauu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaagcuucgu ucaacauccu gaacuaacag gauuggauug uaugaggccu 1260

ugcuucuggg uugaauugau cagaggacga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggagugaau ggugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47837
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ44430

<400> 47837
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug ugcaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccugguau cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47838
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ44441

<400> 47838
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagac augccccaaa 240

guaguggaau acagaaguug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagagccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagcgcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aauaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua ggcaagucau aguugacagc 1200

gauaaucggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47839
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ44463

<400> 47839
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaagg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaccgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcca gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auaucagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47840
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABQ44474

<400> 47840
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugacaau cggaacaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauaacacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaaug uuguugcugg aaaggacaca 240

acgucaauga uauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau gcucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaaa gacagaagcc cuuauagggc cuuaaugagc 480

uguccuaucg gugaagcucc gucuccguac aauucaagau uugaaucggu ugcuugguca 540

gcgagugcau gucaugaugg caugggcugg cuaacuaucg gaauuucugg uccagaugau 600

ggagcagugg cuguauuaaa auacaacggc auaauaacug aaaucauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcaccuaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcaa agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccauggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaguuc cagaaagggg uuugagauga uuugggaucc uaaugggugg 1140

acagauaccg augguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguauagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 47841
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR15800

<400> 47841
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 47842
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR15811

<400> 47842
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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauaacacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaaug uuguugcugg aaaggacaca 240

acuucaauga uauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau gcucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaaa gacagaagcc cuuauagggc cuuaaugagc 480

uguccuaucg gugaagcucc gucuccguac aauucaagau uugaaucggu ugcuugguca 540

gcgagugcau gucaugaugg caugggcugg cuaacuaucg gaauuucugg uccagaugau 600

ggagcagugg cuguauuaaa auacaacggc auaauaacug aaaucauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcaccuaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcaa agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccauggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaguuc cagaaagggg uuugagauga uuugggaucc uaaugggugg 1140

acagauaccg augguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguauagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugcccuucac cauugacaag uag 1413

<210> 47843
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABR15910

<400> 47843
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau uuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47844
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABR15932

<400> 47844
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcc gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47845
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR15943

<400> 47845
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caggcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucggu auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47846
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABR15954

<400> 47846
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacaac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47847
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR15965

<400> 47847
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47848
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR22243

<400> 47848
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 47849
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28518

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca gcagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47850
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28595

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ugcuuccuca ugcagauugc cauccuggua accacuguaa cauugcauuu caagcaauau 120

gagugcgacu ccccagcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugacuaac accaccauag aaaaagagau augccccaaa 240

uuaguggaau acaggaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaccc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucacuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca gcauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugu guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaauuguuc auacuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

ccagucguag auauaaaugu gaaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuugugggcg acacacccag aaacaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaaa aagggacuca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggauuca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47851
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28771

<400> 47851
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaag agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47852
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28782

<400> 47852
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47853
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28793

<400> 47853
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47854
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28804

<400> 47854
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47855
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28815

<400> 47855
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47856
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28826

<400> 47856
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcc gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47857
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABR28837

<400> 47857

augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucc cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47858

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28848

<400> 47858
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauuguugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagauua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagaugg uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 47859
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28859

<400> 47859
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccc 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gguaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47860
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28870

<400> 47860
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agacagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47861
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28881

<400> 47861
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacagua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47862
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28892

<400> 47862
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47863
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28903

<400> 47863
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucu aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcggauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47864
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR28925

<400> 47864
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacagugcau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaguccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuac agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauua cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47865
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABR88082

<400> 47865
auggauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaucauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47866
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS00324

<400> 47866
augaauccaa aucagaaaau aauaaccaua ggaucaaucu guauggcaau aggaauaauu 60

agucuaauau ugcaaauagg aaauauuguu ucaauaugga ucagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauaucaac aacacuaaug uuguugcugg acaggacaca 240

acuucagugg cauuagccgg caauucaucu cuuuguccua ucagugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg aaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucucccuac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgaa uaaugggccu gccucguaca aaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acgccggcac agugaugugu gugugcagag acaauuggcg ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaagccug gauuaucaaa uaggauacau cugcaguggu 960

guuuuuggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaagagga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaaauu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaagcuucgu ucaacauccu gaacuaacag gauuggauug uaugaggccu 1260

ugcuucuggg uugaauugau cagaggacga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau ggugauacug caaauugguc uuggccagac 1380

gguuccgagu ugccauucac cauugacaag uag 1413

<210> 47867
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS49902

<400> 47867

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caggcaauau 120

gagugcgacu cccccgcgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguuaau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47868
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABS49913

<400> 47868
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu caggcaauau 120

gagugcgacu cccccacgaa caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

uuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag auauaaaugu ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacaacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca cggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagauaaaua ggcaagucau aguugacagc 1200

gauaauaggu cagguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguuaau aaggggaagg gaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47869
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS49968

<400> 47869
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaauau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47870
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS49979

<400> 47870
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47871
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS49990

<400> 47871
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga uauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47872
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABS50001

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47873
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABS50012

<400> 47873
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacgcccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47874
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS50023

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ugcuuccuua ugcaaauugc cguccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacc cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cauaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47875
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS50034

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47876
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuuccuua ugcaaacugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaauacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

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cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47877
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS50056

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc agggaaagcc gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47878
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABS50067

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

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cccaucguag auauaaaugu aaaggaucau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagacccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu cugguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47879
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABS50078

<400> 47879
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47880
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS71644

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gaaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaggu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua ccaaaacaau ggaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac aguaaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauggga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcua ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugguacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47881
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS71646

<400> 47881
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gaaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaggu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua ccaaaacaau ggaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac aguaaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauggga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcua ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugguacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47882
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABS71647

<400> 47882
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gaaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaggu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaga 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua ccaaaacaau ggaguugaau gcacccaauu uucauuauga ggaauguucc 840

ugcuacccag acacuggcac aguaaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acgggguaaa aggguuuuca uacaaauaug guaauggugu uuggauggga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcua ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau aguggugcug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47883
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS71648

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaaaucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaggu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua ccaaaacaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuaaggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugguacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47884
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS71649

<400> 47884
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauagggcc gcuucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47885
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABS71651

<400> 47885
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac cagagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucug ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc ccuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccuag uaauggggcc gccucguaca aaauuuucaa gauugagaag 780

gggaaaguua cuaaaucaau agaguugaau gcacccaguu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg uaucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uugguuaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauuggucg 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcuu ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau aguaauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47886
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABS71652

<400> 47886
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac cagagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucug ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc ccuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccuag uaaugggggcc gccucguaca aaauuuucaa gauugagaag 780

gggaaaguua cuaaaucaau agaguugaau gcacccaguu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg uaucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauuggucg 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcuu ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau aguaauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

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<211> 1413
<212> RNA
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugauc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagugcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaag agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccgg acauuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

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aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

ggaagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uaa 1413

<210> 47888
<211> 1410
<212> RNA
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugacaaaaau 600

gcaacugcua gcuucauuua caauggaagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgcg 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47890
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS71659

<400> 47890
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcgaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggacuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucacau gccuauauaa 1410

<210> 47891
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<212> RNA
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<220>
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<400> 47891
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47892
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABS71661

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggacuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauag 1410

<210> 47893
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABS71662

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ugcuucuuca ugcaaauugc uaucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaguucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagu 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua uaaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47894
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABS71663

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuauaggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugaucaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa ggacgaucag cgagaaguca cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagaugaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47895
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU40956

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ugcuucuuca ugcaaauugc caucuugaua acuacuguga cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caauuguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaccggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucauag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47896
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABU50651

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augagaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47897
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABU80180

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccuucccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47898
<211> 1413
<212> RNA
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<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU80301

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47899
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABU80312

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau gagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 47900
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABU80323

<400> 47900
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cguugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guaucgguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47901
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU80334

<400> 47901
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaacacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau acggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47902
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92762

<400> 47902
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gagggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47903
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92764

<400> 47903
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauggaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaacg uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaag aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47904
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92765

<400> 47904
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47905
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92766

<400> 47905
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47906
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92767

<400> 47906
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47907
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92768

<400> 47907
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47908
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92769

<400> 47908
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47909
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92770

<400> 47909
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaauc 60

ugcuuccuua ugcaaauugc cauccuagua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47910
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92771

<400> 47910
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuaa caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47911
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92772

<400> 47911

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47912

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92773

<400> 47912
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agacagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47913
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92774

<400> 47913
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agacagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagacaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47914
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92775

<400> 47914
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauugugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugua ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47915
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92777

<400> 47915
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc acacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggagcugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47916
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92778

<400> 47916
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaagu augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47917
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92779

<400> 47917
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47918
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92780

<400> 47918
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacucagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cucguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47919
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92781

<400> 47919
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccc 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47920
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92782

<400> 47920
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg agagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47921
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92783

<400> 47921

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47922
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92784

<400> 47922
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47923
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92785

<400> 47923
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47924
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92786

<400> 47924
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacucagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47925
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92787

<400> 47925
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgac auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47926
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92789

<400> 47926
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguagca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauagaaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag acauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucggga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47927
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92790

<400> 47927
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaaugugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc acacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucggga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47928
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABU92791

<400> 47928
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcacuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47929
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABU92792

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

guauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47930
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92793

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47931
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABU92794

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguagca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauagaaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag acauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucggga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47932
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<212> RNA
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neuraminidase__InfluenzaA__ABU92795

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47933
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABU92796

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugagaaguug cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47934
<211> 1410
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<220>
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neuraminidase__InfluenzaA__ABU92797

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

agaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucaa cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47935
<211> 1410
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<220>
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neuraminidase__InfluenzaA__ABU92798

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47936
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92799

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47937
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92800

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47938
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92801

<400> 47938
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugca ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47939
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92802

<400> 47939
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47940
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92804

<400> 47940
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg uuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47941
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92805

<400> 47941
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cccucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau auguccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47942
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92806

<400> 47942
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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47943
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92808

<400> 47943
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauuac cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accacuauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagagccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggcgu cagaugugua ugccgagaca acuggaaagg cuccaauaga 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaca ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47944
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92809

<400> 47944
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc gugguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugacgucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47945
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92810

<400> 47945
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaagga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47946
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92811

<400> 47946
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau gauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu guuggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacucagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cucguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggacauca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47947
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92814

<400> 47947
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47948
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92815

<400> 47948
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcc gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47949
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92816

<400> 47949
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47950
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92817

<400> 47950
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaaa gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47951
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92818

<400> 47951
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47952
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92819

<400> 47952
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47953
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92821

<400> 47953
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47954
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABU92822

<400> 47954
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47955
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92823

<400> 47955
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggugaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47956
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92824

<400> 47956
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aagaaaugac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47957
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92825

<400> 47957
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuaa caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47958
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92826

<400> 47958
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuaa caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguccccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47959
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92827

<400> 47959
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caauggaagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47960
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92828

<400> 47960
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguucau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47961
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92829

<400> 47961
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagcca caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47962
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92830

<400> 47962
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccguug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47963
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92831

<400> 47963
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47964
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92832

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47965
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92833

<400> 47965

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauaua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccaaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaaguug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguuuuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47966

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92834

<400> 47966
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcaaua 60

ugcuuccuua ugcauauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucagucucau gccuauauaa 1410

<210> 47967
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92835

<400> 47967
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47968
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92836

<400> 47968
augaauccaa aucaaaagau aauaacaauu ggcuccguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accagacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47969
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92837

<400> 47969
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaggcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauugcuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug cgucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47970
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92838

<400> 47970
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47971
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92839

<400> 47971
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47972
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92840

<400> 47972
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47973
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92841

<400> 47973
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47974
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92842

<400> 47974
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gacugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47975
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92843

<400> 47975

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47976
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92844

<400> 47976
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caaacaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuggcuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47977
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92845

<400> 47977
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47978
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92846

<400> 47978
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47979
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92847

<400> 47979
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47980
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92848

<400> 47980
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacggac auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47981
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92849

<400> 47981
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaaaccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gugauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucuaggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47982
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92850

<400> 47982
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

acugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcca gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucgucc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaggg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacaccaag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa augaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47983
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92851

<400> 47983
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguagca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauagaaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc auguugagga augcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag acauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaagacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47984
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92852

<400> 47984
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47985
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92853

<400> 47985
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa aaaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uaugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cguucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccaaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47986
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92854

<400> 47986
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47987
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92855

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aauugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47988
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92856

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgacccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggaga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugu guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga augcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47989
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92857

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47990
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92858

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug auacugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacug 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47991
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABU92859

<400> 47991
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcaggau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47992
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92860

<400> 47992
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaacau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguacaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuauuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47993
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABU92861

<400> 47993
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauggc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc uggcauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47994
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92862

<400> 47994
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuagggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47995
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92863

<400> 47995
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguucau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 47996
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92865

<400> 47996
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgaucuuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47997
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92866

<400> 47997
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccuccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaagg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaccugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugacg ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca auagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccucg 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47998
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92867

<400> 47998
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 47999
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92868

<400> 47999
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguagca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauagaaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag acauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucggga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48000
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92869

<400> 48000
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48001
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92870

<400> 48001
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggaga cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48002
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92872

<400> 48002
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau aacauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca ggcacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48003
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92873

<400> 48003
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aagaggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaauaucau gccuauauaa 1410

<210> 48004
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92874

<400> 48004
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cccucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacucagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cucaaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48005
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92875

<400> 48005
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggacuc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48006
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92876

<400> 48006
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuuuauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48007
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92877

<400> 48007
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48008
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABU92878

<400> 48008
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48009
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92879

<400> 48009
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaaggggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48010
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92880

<400> 48010
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau aacauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48011
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92881

<400> 48011
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccgcgaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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<220>
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neuraminidase__InfluenzaA__ABU92882

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABU92883

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa aaaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cguucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccaaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48014
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92884

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48015
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92885

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu caggugugug uguagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48016
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92886

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaaaccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucuaggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48017
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92887

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuucagcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc cugguccagc 540

ucaaguuguc acgauggaaa agcguggcua cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauaua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccaaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguuuuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48018
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92888

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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuauuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucguu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48019
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92889

<400> 48019

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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<220>
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neuraminidase__InfluenzaA__ABU92890

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accagacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguuggu aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

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<211> 1410
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neuraminidase__InfluenzaA__ABU92891

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuaa caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48022
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92892

<400> 48022
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48023
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92893

<400> 48023
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagg 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48024
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92895

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga cgauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augaccgaug ggagugcuuc aggaaaagcu gauacuaaaa uacuguucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauugcuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48025
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92896

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggaa ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugauag aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuaggau augagaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48026
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92897

<400> 48026
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaacucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca acucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauagaaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaacagg 900

cccauaguag acauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguauu guggaccuca 1320

aacaguauug uuguguuuug uggcaccucu gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48027
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92898

<400> 48027
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagaa ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48028
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92899

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccaaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48029
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92900

<400> 48029

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacc cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccaaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48030
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92901

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuaguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48031
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABU92902

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48032
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABU92903

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accagacaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48033
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92904

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48034
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92905

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccc 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48035
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92906

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaacucau gccuauauaa 1410

<210> 48036
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABU92907

<400> 48036
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48037
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92908

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48038
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92909

<400> 48038
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug gaagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccaaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuucuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48039
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92910

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ugcuuccuua cgcaaauugc uauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aagggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48040
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92911

<400> 48040
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugacaaac accaccauag agaaggaaau augccccaaa 240

caagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguuaau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48041
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABU92913

<400> 48041
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau uaaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguuaau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48042
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29560

<400> 48042
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaauuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48043
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29571

<400> 48043
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48044
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29582

<400> 48044
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48045
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29615

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48046
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29637

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggacc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauauc ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48047
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29648

<400> 48047
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagu 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48048
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29659

<400> 48048
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48049
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29670

<400> 48049
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48050
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29681

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcauugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48051
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29692

<400> 48051
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagagaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaaaggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48052
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29703

<400> 48052
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48053
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29714

<400> 48053
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag aaauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48054
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29725

<400> 48054
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaaggg augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uuuccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aauaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48055
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29736

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaaaggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48056
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29747

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaguguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaga caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48057
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29769

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc ccuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48058
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29780

<400> 48058
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aguuuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaacc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucc cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggauc auguuucacu 720

auaaugaccg auggcccgag ugaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guagcaaacu uagaaaaggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaaggccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48059
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABV29791

<400> 48059
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48060
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29802

<400> 48060
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48061
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29824

<400> 48061
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48062
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABV29835

<400> 48062
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aaucggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaauggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48063
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29846

<400> 48063
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaauu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg uaucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugacacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48064
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29879

<400> 48064
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agucuaaugu uacaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuuaucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48065
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29890

<400> 48065
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaccc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48066
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29901

<400> 48066
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguggaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug uaucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48067
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29912

<400> 48067
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua uaaugggagg cuuguggaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc auuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaga uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu augcucagga 960

cuuguuggag acacacccag aaaaaaugac aguuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccggcuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 48068
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neuraminidase__InfluenzaA__ABV29923

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48069
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29934

<400> 48069
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagga ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48070
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29945

<400> 48070
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaaaggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48071
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29956

<400> 48071
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaagga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48072
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV29989

<400> 48072
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau gagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48073
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30000

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48074

<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABV30011

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc auccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48075
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30022

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48076
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30044

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaggga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaagcuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48077
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30055

<400> 48077
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guuugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48078
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABV30077

<400> 48078
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua gacaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48079
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30088

<400> 48079
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48080
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30099

<400> 48080
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48081
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30110

<400> 48081
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48082
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30132

<400> 48082
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48083
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30143

<400> 48083

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48084
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABV30154

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48085
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30165

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauuuaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gcaucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48086
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30187

<400> 48086
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48087
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30198

<400> 48087
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaauuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48088
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABV30209

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48089
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30220

<400> 48089
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uguuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48090
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30231

<400> 48090
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48091
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30264

<400> 48091
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu cccccccaaa caaccaggug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agguagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48092
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30275

<400> 48092
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccaccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48093
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30297

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48094
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30308

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucuguu ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48095
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30319

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agucuaaugu ugcaaauagg aaauauuguu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaggaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcuuuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48096
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30330

<400> 48096
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48097
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30341

<400> 48097
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48098
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30363

<400> 48098
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaccc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48099
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30374

<400> 48099
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gucaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48100
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30385

<400> 48100
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcc cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggaga cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuguucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48101
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30396

<400> 48101
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuaucagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucuggguaac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauucgccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaag 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauuaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggacccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa augaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucuuau gccuauauaa 1410

<210> 48102
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30407

<400> 48102
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguaugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48103
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30418

<400> 48103
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu cccucccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

uguuuuuaug uggaguugau aaggggaaga agagaggaga cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccucg gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48104
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30429

<400> 48104
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagga ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48105
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30440

<400> 48105
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagga ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48106
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30451

<400> 48106
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagga ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48107
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30462

<400> 48107
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48108
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30473

<400> 48108
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagga ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48109
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30484

<400> 48109
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca auagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48110
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30495

<400> 48110
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48111
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30506

<400> 48111
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaauuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48112
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30517

<400> 48112
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48113
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30528

<400> 48113
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agucuaaugu ugcaaauagg aaauauuauu ucaauguggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gcaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48114
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30539

<400> 48114
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugagcuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48115
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30561

<400> 48115
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucucuua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48116
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABV30572

<400> 48116
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggagcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48117
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30583

<400> 48117
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugagcuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48118
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30594

<400> 48118
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caagauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48119
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30605

<400> 48119
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguuguugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48120
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30616

<400> 48120
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48121
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30627

<400> 48121
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48122
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30649

<400> 48122
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaugcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccacug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48123
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV30660

<400> 48123
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48124
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45852

<400> 48124
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucca ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgaa uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48125
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45863

<400> 48125
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48126
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45874

<400> 48126
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau agggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuaguuacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaccc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagua uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48127
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABV45885

<400> 48127

augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac uauugacaag uag 1413

<210> 48128

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45896

<400> 48128
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48129
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45918

<400> 48129
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48130
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45929

<400> 48130
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauguggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggauacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48131
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45940

<400> 48131
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau uggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucagauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaagcuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc aaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48132
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45951

<400> 48132
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau uggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48133
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABV45973

<400> 48133
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cacugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua guuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac aguuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugacgucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48134
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45984

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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48135
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV45995

<400> 48135
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48136
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV82554

<400> 48136
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48137
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABV82565

<400> 48137

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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac acaaccauag agaaggaaau augcccuaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguuuuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48138
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW36171

<400> 48138
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48139
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW36193

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucuguu ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48140
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW36204

<400> 48140
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48141
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW36215

<400> 48141
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaggauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cacuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caagggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaac 660

aagcaaauau ugagaacaca agagucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uuggauacau cugcagugga 960

guuuucggug acaauccgcg ucccaaagau ggaaggggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagucauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gguuggacug uauaaaaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagc 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucau cauugacaag uag 1413

<210> 48142
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW36226

<400> 48142
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48143
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW36237

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48144
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48145
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW36259

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauagggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

gugcucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcag acggagugaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gagcuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuagu agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48146
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW36281

<400> 48146
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggcgcugagu ugccguucac uauugacaag uag 1413

<210> 48147
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW36292

<400> 48147
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuacga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48148
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW36303

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaga guaacaaacu uagaaaaggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48149
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neuraminidase__InfluenzaA__ABW36314

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agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagcugg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggcag gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu uucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacgau cuggacuagu 1320

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ggugcugagu ugccauucac cauugacaag uag 1413

<210> 48150
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<212> RNA
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<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW38366

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugcuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48151
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39780

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaggauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cacuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caagggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaac 660

aagcaaauau ugagaacaca agagucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uuggauacau cugcagugga 960

guuuucggug acaauccgcg ucccaaagau ggaaggggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagucauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gguuggacug uauaaaaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagc 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucau cauugacaag uag 1413

<210> 48152
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39809

<400> 48152
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuuuaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccc 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48153
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39820

<400> 48153
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaaaggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48154
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39831

<400> 48154
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuccaguga cauuggucgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg cauaggcugg uuaacaauag gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau ggaguugaau gcacccaauu uucauuauga ggaauguucu 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagaau uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau ggugauauug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48155
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39842

<400> 48155
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau uggaauaauu 60

agucuaaugu uacaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48156
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39864

<400> 48156
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg gaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48157
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39875

<400> 48157
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48158
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39886

<400> 48158
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

agaaaucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguaucaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg uccuaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48159
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39897

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaccc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48160
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39908

<400> 48160
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48161
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39930

<400> 48161
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugaggacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag ugauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48162
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39952

<400> 48162
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aaugugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48163
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW39963

<400> 48163
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau agggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaccc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48164
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39985

<400> 48164
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48165
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW39996

<400> 48165
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau uggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauua ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggacc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucagcauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48166
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40007

<400> 48166
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48167
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40018

<400> 48167
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaauuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48168
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40029

<400> 48168
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48169
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40040

<400> 48169
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaaaguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaaugguau uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48170
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABW40051

<400> 48170
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48171
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40062

<400> 48171
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48172
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40084

<400> 48172
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48173
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40095

<400> 48173
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guguagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggccc gccucauaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacaggcu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48174
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40106

<400> 48174
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucuguu ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagaugg uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48175
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40117

<400> 48175
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccacuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48176
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40128

<400> 48176
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48177
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40139

<400> 48177
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48178
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40150

<400> 48178
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau agggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48179
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40161

<400> 48179
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaauagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48180
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40172

<400> 48180
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugac aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48181
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW40183

<400> 48181

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48182

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40194

<400> 48182
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguggaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48183
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40205

<400> 48183
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau uggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg uaucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugacacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48184
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40216

<400> 48184
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48185
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40227

<400> 48185
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48186
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40238

<400> 48186
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gucaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48187
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40249

<400> 48187
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48188
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40260

<400> 48188
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48189
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABW40271

<400> 48189
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaac acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaagaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48190
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40282

<400> 48190
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48191
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40293

<400> 48191

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cacuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaaau uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugacacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48192
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW40304

<400> 48192
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggggaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucg 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48193
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40315

<400> 48193
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggggaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucg 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48194
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40326

<400> 48194
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48195
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40337

<400> 48195
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagagc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggccc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacaggcu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48196
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40359

<400> 48196
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auaccacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48197
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40370

<400> 48197
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acuccggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaggau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48198
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40403

<400> 48198
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48199
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40414

<400> 48199
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucauaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuga ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48200
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40425

<400> 48200
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48201
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40436

<400> 48201
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48202
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40447

<400> 48202
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48203
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40458

<400> 48203
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48204
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40469

<400> 48204
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugagcuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48205
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40491

<400> 48205
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcuguag cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggagcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48206
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40502

<400> 48206
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugagcuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48207
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW40513

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agucugaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uaacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcacuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48208
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW40524

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caagauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48209
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40546

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcggauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggccc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau ggaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau augcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48210
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABW40557

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggggaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucg 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48211
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40568

<400> 48211
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccucgagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48212
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40579

<400> 48212
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgaa uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48213
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40601

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

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ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48214
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABW40612

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

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ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48215
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW40623

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48216
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40634

<400> 48216
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaagaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48217
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40645

<400> 48217
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48218
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40656

<400> 48218
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggggca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaagaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48219
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40667

<400> 48219
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48220
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW40678

<400> 48220
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaauuggguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48221
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71297

<400> 48221
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aguuuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugacacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48222
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71308

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48223
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71319

<400> 48223
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48224
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABW71330

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc aucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48225
<211> 1413

<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71341

<400> 48225
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaauuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggcuagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48226
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71352

<400> 48226
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagga ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48227
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABW71363

<400> 48227
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggccc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48228
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71374

<400> 48228
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48229
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71385

<400> 48229
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48230
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71396

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aguccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggauc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48231
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71407

<400> 48231
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaaau uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugacacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48232
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71418

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48233
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<212> RNA
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<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW71440

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48234
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW71451

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48235
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW71462

<400> 48235

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48236

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW80980

<400> 48236
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ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48237
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW80981

<400> 48237
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaua acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48238
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81474

<400> 48238
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guguggcaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaaaaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauuuuaac aacacuaaug uuguugcugg aaaggacaaa 240

cccucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucuug gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 48239
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81475

<400> 48239
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaagacaaa 240

aguucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcu gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucauugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48240
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81477

<400> 48240
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucgguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gcuucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugagu gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

ccagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 48241
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81478

<400> 48241
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agccuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaccaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa auaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg ggaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugacacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48242
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81479

<400> 48242
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaaaaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

cccucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaauaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 48243
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81480

<400> 48243
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agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucgguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gcuucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uag 1413

<210> 48244
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81481

<400> 48244
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaaaaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

cccucgauga cauuggcagg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucugg gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 48245
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81482

<400> 48245

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa acuacacugg aauaugcaac caaaaaauca uuacauauga aaauagaacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

cccucgauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcaauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccauuaag gacagaagcc cuuuuagggc cuuaaugagc 480

uguccucuug gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg ccugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaaucc uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaacagggcc gcaucguaca gaaucuucaa aauugagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac aguaaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggccug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgagacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 48246
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW81483

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc auccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccacgaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg caguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48247
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81484

<400> 48247
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaaaucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaagggcaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca auagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccacgaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48248
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81487

<400> 48248
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug uaaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucau ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48249
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81488

<400> 48249
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48250
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81489

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccacgaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

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<212> RNA
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neuraminidase__InfluenzaA__ABW81490

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccacgaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48252
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW81491

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguugggaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac aguaaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48253
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW81492

<400> 48253
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccacgaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cugggcuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48254
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81493

<400> 48254
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48255
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81494

<400> 48255
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccacgaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48256
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81495

<400> 48256
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggagugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccacgaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48257
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81497

<400> 48257
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguugggaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac aguaaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48258
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81498

<400> 48258
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguugggaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac aguaaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48259
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81499

<400> 48259
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aagggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccacgaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

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aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48260
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81500

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagugcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa guacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48261
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW81501

<400> 48261
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agucuaaugu ugcaaauagg gaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaaaauca ucacauauga gaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucug ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagugcau gucaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guauucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggauacagug gaaguuucgu ucaacauccu gaauuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48262
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86324

<400> 48262
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48263
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86335

<400> 48263
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48264
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABW86346

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48265
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86357

<400> 48265
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg acauuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48266
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86368

<400> 48266
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac uauugacaag uag 1413

<210> 48267
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86379

<400> 48267
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu caauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48268
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86390

<400> 48268
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48269
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86401

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48270
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86412

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaagacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48271
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86423

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucgcc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48272
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW86434

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48273
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW86445

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaauggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48274
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu caauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48275
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW86467

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaauuaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48276
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48277
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW86489

<400> 48277
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug ugggaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48278
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ABW86500

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagagc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

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agaacuaaaa guaacaggcu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucaaugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48279
<211> 1413

<212> RNA
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<220>
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

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ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48280
<211> 1413
<212> RNA
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neuraminidase__InfluenzaA__ABW86522

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugacug auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaguaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucauaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48283
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<220>
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48284
<211> 1410
<212> RNA
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacagu aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48285
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW86609

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48286
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91188

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu caauauuaac aacacuaacg uuguugcugg aaaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggaccu gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga ccuagagaaa agacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 48287
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW91210

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug auacugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48288
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW91221

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48289
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<212> RNA
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<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW91232

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaucaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48290

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91243

<400> 48290
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABW91254

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaaugugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48292
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW91265

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguggaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48293
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91276

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48294
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91287

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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaua uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaggu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaacuauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa uguguuugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua ccaaaacaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ccccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gguuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugguacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

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<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91298

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg gaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48296
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW91309

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag ugaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48297
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neuraminidase__InfluenzaA__ABW91320

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48298
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABW91331

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ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48299
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91342

<400> 48299

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuacga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48300
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABW91353

<400> 48300
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga ccuuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaauuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcugcaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uucgagauga uuugggaucc caauggaugg 1140

acagauaccg acagugauuu cucaguuaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48301
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91364

<400> 48301
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacu 720

auaaugaccg auggcccgag ugaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaaugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48302
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91375

<400> 48302
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48303
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91386

<400> 48303
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuucg uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48304
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91397

<400> 48304
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc auuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaaguuauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cagguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48305
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91408

<400> 48305
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cuguagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaauuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcgauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48306
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91419

<400> 48306
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

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ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48307
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91430

<400> 48307
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggaucugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugacacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48308
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91441

<400> 48308
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguggaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48309
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW91452

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggauug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48310
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48311
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91474

<400> 48311
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48312
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91485

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48313
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91496

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48314
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91507

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

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ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48315
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABW91518

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agucuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggauacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48316
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91529

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccauuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48317
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91540

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

uggaugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucagu agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48318
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABW91551

<400> 48318
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ucccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguugcc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48319
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91562

<400> 48319
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48320
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91584

<400> 48320
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48321
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91595

<400> 48321
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48322
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91606

<400> 48322
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48323
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91617

<400> 48323
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48324
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91628

<400> 48324
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc caauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48325
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuacga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48326
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABW91650

<400> 48326
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cacugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48327
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX10517

<400> 48327
augaauccaa auaagaagau aauaaccauc ggaucaaucu guaugguaac uggaaugguu 60

agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac acaaagcuga accaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguacac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaacaaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug ggcuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48328
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABX10527

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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggaga cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48329
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABX58242

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agucuaaugu ugcaaauagg aaauauuauu ucaauaugga cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguaucaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48330
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABX58253

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaggauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cacuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caagggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaac 660

aagcaaauau ugagaacaca agagucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uuggauacau cugcagugga 960

guuuucggug acaauccgcg ucccaaagau ggaaggggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagucauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gguuggacug uauaaaaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagc 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucau cauugacaag uag 1413

<210> 48331
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABX58264

<400> 48331
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcug acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48332
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABX58275

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48333
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABX58286

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aaucggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48334
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABX58297

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaaaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuucc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48335
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58308

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cuguagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaauuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcgauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48336
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABX58319

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccauuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucauaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48337
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58352

<400> 48337
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaauuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcgauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48338
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58363

<400> 48338
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48339
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58385

<400> 48339
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48340
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58396

<400> 48340
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48341
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58407

<400> 48341
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguccua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48342
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58418

<400> 48342
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguca cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48343
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58429

<400> 48343
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48344
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<212> RNA

<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ABX58440

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccugacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugagcuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48345
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58451

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuucug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48346
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58462

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agucugaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uaacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcacuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48347
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
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<400> 48347
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggggaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucg 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48348
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58484

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agucugaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uaacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcacuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48349
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58495

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaauag aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48350
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58506

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48351
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58528

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agucugaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uaacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcacuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48352
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58539

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcacuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48353
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<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58550

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cguugacaag uag 1413

<210> 48354
<211> 1413
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABX58561

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg uguccuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48355
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58572

<400> 48355
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucauaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacaggcu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48356
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58583

<400> 48356
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggagcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48357
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58594

<400> 48357
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg uaauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48358
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58605

<400> 48358
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau uggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48359
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58616

<400> 48359
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48360
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58627

<400> 48360
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuacga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48361
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58638

<400> 48361
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggggaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucg 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48362
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58682

<400> 48362
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac aaugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48363
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58693

<400> 48363
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauagggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

gugcucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48364
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABX58704

<400> 48364
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaguaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaauuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcgauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48365
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ABX58715

<400> 48365

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaggauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cacuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caagggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaac 660

aagcaaauau ugagaacaca agagucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uuggauacau cugcagugga 960

guuuucggug acaauccgcg ucccaaagau ggaaggggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu aagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagucauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gguuggacug uauaaaaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagc 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucau cauugacaag uag 1413

<210> 48366

<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY19420

<400> 48366
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agcuuaaugu ugcaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaaa accaaguuga gccaaucauc aauacuaauu uucuuacugg gaaagcugug 180

gcuucaauaa cauuagcggg caauucaucu cuuugcccua uuagaggaug ggcuauacac 240

aguaaggaca acaguauaag gauugguucc aagggggaug uguuuguuau uagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccggacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gagcuggagg 600

aacaacauac ugagaacuca agaauccgaa ugugcaugcg uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaaguaa ucaaaucagu cgaauuggau gcuccuaauu accacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcagag auaauuggca uggcucaaau 840

cggccauggg uguccuucaa ucaaaaucug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugcggucc gguguccccau 960

aaugggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcccuaauuc caggagcggc uuugagauga uuugggaucc aaaugggugg 1080

agugaaacgg acaguagcuu cucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag guuuagauug cauaagaccu 1200

uguuucuggg uugaauuaau cagagggcgg cccaaagaga guacaguuug gacuaguggg 1260

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gcugaguugc cauucagcau ugacaaguag 1350

<210> 48367
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY19421

<400> 48367
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agcuuaaugu ugcaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaaa accaaguuga gccaaucauc aauacuaauu uucuuacugg gaaagcugug 180

gcuucaauaa cauuagcggg caauucaucu cuuugcccua uuagaggaug ggcuauacac 240

aguaaggaca acaguauaag gauugguucc aagggggaug uguuuguuau uagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaacgg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccggacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gagcuggagg 600

aacaacauac ugagaacuca agaguccgaa ugugcaugcg uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaaguaa uuaaaucagu cgaauuggau gcuccuaauu accacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcagag auaauuggca uggcucaaau 840

cggccauggg uguccuucaa ucaaaaucug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugcggucc gguguccccau 960

aaugggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcccuaauuc caggagcggc uuugagauga uuugggaucc aaaugggugg 1080

agugaaacgg acaguagcuu cucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag guuuagauug cauaagaccu 1200

uguuucuggg uugaauuaau cagagggcgg cccaaagaga guacaguuug gacuaguggg 1260

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gcugaguugc cauucagcau ugacaaguag 1350

<210> 48368
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51020

<400> 48368
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc auugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48369
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51031

<400> 48369
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48370
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51042

<400> 48370
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg gauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauagggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug ucgcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48371
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51053

<400> 48371
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggauc auguuucacc 720

auaaugaccg auggcccgag uaauagggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggaacag acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48372
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51064

<400> 48372
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaaggauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cacuggccgg caauucaucu cuuuguucua uuaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caagggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaac 660

aagcaaauau ugagaacaca agagucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uuggauacau cugcagugga 960

guuuucggug acaauccgcg ucccaaagau ggaaggggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagucauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaaaaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucau cauugacaag uag 1413

<210> 48373
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51075

<400> 48373
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48374
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51086

<400> 48374
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aguauaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccuag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaauuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48375
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51097

<400> 48375
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucagu agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48376
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51108

<400> 48376
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuucc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauauug uggcaauaac ugauugguca 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48377
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51119

<400> 48377
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48378
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51130

<400> 48378
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaagaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48379
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51141

<400> 48379
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48380
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51152

<400> 48380
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaac gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48381
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51163

<400> 48381
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga uauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaauguagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauau aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaugga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaccaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa aggauuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48382
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51174

<400> 48382
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48383
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neuraminidase__InfluenzaA__ABY51185

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caagauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABY51196

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaauggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48385
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51229

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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48386
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51240

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agucuaaugu ugcaaauagg aaauauuauu ucaguauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug gucuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa ggggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48387
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51251

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg ggauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg auaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaag uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaaacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac cgauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu uagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48388
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY51262

<400> 48388
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa augcaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48389
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABY51273

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48390
<211> 1350
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ABY76285

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac gccaagcuga accaaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugaccauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaaccca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua agaucuucaa aauggaaaaa 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggauuggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauauug uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48391
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY81352

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agucuaauau ugcaaauagg gaguauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaagau uugaaucggu ugcuugguca 540

gcaagugcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug agaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggcag gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 48392
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY81363

<400> 48392
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaauu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

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agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

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ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48393
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY81374

<400> 48393
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augcccuaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuugucggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48394
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<212> RNA
<213> Artificial Sequence

<220>
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48395
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ABY81407

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cuuagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48396
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACA24505

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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48397
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACA24516

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaaa 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaag caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48398
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACA24527

<400> 48398
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48399
<211> 1410
<212> RNA
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<220>
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcc ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca augggacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaugaggaaa ccgaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48400
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACA24703

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac aucaccauag agaaggaaac augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug ggagugcuuc aggaaacgcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48401
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACA33539

<400> 48401
augaauccau aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uuuauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48402
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACA33540

<400> 48402
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau agggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucgaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uuuauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48403
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACA33582

<400> 48403
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uuuauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48404
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACA33622

<400> 48404
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uuuauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaaggccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48405
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACA96522

<400> 48405
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48406
<211> 1362
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACC55274

<400> 48406
augaauccaa aucagaagau aauaacaauu ggcuccgucu cucuaaccau ugcaacagua 60

uguuuccuca ugcagauugc cauccuagca augacuguaa cacugcauuu caggcaaaau 120

gaaugcagca uuucagcgaa cagucaggua gugccaugug aaccaacuac agagaaagag 180

gucuguucga aaguaguaga cuauagaagc uggucaaagc cgcaguguca aauuacagga 240

uuugcuccuu uuuccaagga caacucaauu cgacuuucug cugguggaga cauuuggaua 300

acaagagagc cuuauguguc gugugacacc agcaaauguu aucaauuugc acuuggacag 360

gggaccacac uggauaacga acauucaaac ggaacaauac augauagaau cccccaucgg 420

acccuuuuga ugaaugaacu gggguguucca uuucacuugg gaaccagaca aguuugcaua 480

gcauggucca gcucaaguug ccaugaugga aaagcauggu ugcacguuug ugucacuggg 540

gaugauagaa augcaacugc uaguuucauu uacaauggga ugcuuguuga caguauuggu 600

ucauggucuc aaaauauccu caggacccag gagucagaau gcguuugcau caauggguc u 660

uguacaguag uaaugacuga uggaagugcc ucagggaagg ccgacacuag aauauuauuc 720

gucaaagagg gaaagauugu ucacauuagc ccauugucag gaagugcuca gcauauagag 780

gaauguuccu guuauccucg auacccaaac gucagaugug ucugcaggga caacuggaag 840

ggcucuaaua ggccuguuau agacauaaac augacagauu auagcaucga cuccaguuau 900

gugugcucag gacuuguugg ggacacacca aggaaugagg auaguucuag uagcagcaac 960

ugcagggauc cuaaugaaga gaggggaaac ccaggaguga aaggaugggc cuuugacagu 1020

ggagaugaug uuuggauggg uagaacaauc aguagggauu cgcggucagg cuaugagaca 1080

uuuaggguca uuggugguug gaccacugcc aauuccaaau cacagaccaa cagacaaguc 1140

auaguugaua auaacaauug gucugguuau ucugguauuu ucucuguuga acacaaaagc 1200

uguaucaaua gguguuuuua uguggaguua auaagaggaa ggccgaaaga aacuagagua 1260

ugguggaccu caaacaguau ugucguguuu ugcggcacuu caggcacuua uggaacaggc 1320

ucauggccug augggggcgaa caucaauuuc augccuauau aa 1362

<210> 48407
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACC61967

<400> 48407
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguccua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48408
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD11077

<400> 48408
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggucaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacaacuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauugac cauugacaag uag 1413

<210> 48409
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD11078

<400> 48409

augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauugac cauugacaag uag 1413

<210> 48410
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACD11079

<400> 48410
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg gaauauuauc ucaauauggg uuagccacuc aauucaaacu 120

ggaagucaaa accauacagg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuagc aacacuaacg uuguugcugg aaaggacaca 240

acuucaauga cauuagccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucuccauac aauucaaggu uugaaucggu ugcuugguca 540

gcaagugcau gucacgaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguaauaaa auacaacggc auaauaacug aaaccauaaa aaguuggagg 660

aagcaaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag ugaugggccg gccucguaca gaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guuuucggug acaauccgcg ucccaaagau ggaaaaggca guugugaucc aguaaauguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg auaguaauuu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugaggccu 1260

ugcuucuggg uugaauuaau cagaggacga cccagagaaa aaacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug uaaauugguc uuggccagac 1380

ggugccgagu ugccauugac cauugacaag uag 1413

<210> 48411
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD56116

<400> 48411
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gguuacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48412
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD56127

<400> 48412
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaguuaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48413
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD56261

<400> 48413
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48414
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACD56272

<400> 48414
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ugacggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggacuau agcauuguuu ccagauaugu uugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa ccgaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48415
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD56283

<400> 48415
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugauaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48416
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD56305

<400> 48416
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguguagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagga uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuaguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48417
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD56316

<400> 48417
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ugcuuccuca ugcagauugc cauccuggua acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguguagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuauggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auaguaauug caggaauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagaug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48418
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD56327

<400> 48418
augaauccaa aucaaaagau aauaacaauu gguucugucu cucucacuau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa ucacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccuag caagugucau caauuugcac ucgggcaggg gaccacacua 420

gaaaacaaac auucaaaugg cacaaaacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua uggcgggagg cuuguggaca guauuguuuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguggua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaggg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccagcuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacagc 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggacauca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48419
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACD85190

<400> 48419
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48420
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85201

<400> 48420
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaggagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca acucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaagg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauuaguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucugga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg uucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48421
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACD85212

<400> 48421
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaaaag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48422
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85223

<400> 48422
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagca 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacucuucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccaucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48423
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85234

<400> 48423
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gaugggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48424
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85245

<400> 48424
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaucau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaga 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggaga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggcuu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gaugaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48425
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85454

<400> 48425
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ggcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu aauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48426
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85465

<400> 48426
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ggcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48427
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85487

<400> 48427
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaucau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu aauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48428
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85498

<400> 48428
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaucau cuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48429
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85509

<400> 48429
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu aauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aagguagucg uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48430
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85520

<400> 48430
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ggcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48431
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85553

<400> 48431
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ggcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48432
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85564

<400> 48432
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agacagcgca ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48433
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85575

<400> 48433
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaucau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48434
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACD85586

<400> 48434
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgaugggaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugggucg uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48435
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACD93582

<400> 48435
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ugcuucuuca ugcaaauugc caucuuggca acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uagaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48436
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF09403

<400> 48436
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuc 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48437
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22151

<400> 48437
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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcagg ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48438
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22246

<400> 48438
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48439
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACF22257

<400> 48439
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48440
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22279

<400> 48440
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggggа ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48441
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22290

<400> 48441
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggggа ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48442
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACF22301

<400> 48442
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48443
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22312

<400> 48443
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48444
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22323

<400> 48444
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccguaug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug ccggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48445
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22334

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug ccggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48446
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22367

<400> 48446
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48447
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22378

<400> 48447
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caagaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48448
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22389

<400> 48448
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu uguaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48449
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF22400

<400> 48449
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaaacaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuauggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuaggu auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48450
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACF22411

<400> 48450
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48451
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF33772

<400> 48451
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuccaguga cauuggccgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg cauaggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau ggaguugaau gcacccaauu uuuauuauga ggaauguucu 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagaau uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauauug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48452
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF33778

<400> 48452
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucagcu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugcuc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guauuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggа ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaga augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugуc ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagauaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuugaauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaca ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48453
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACF33785

<400> 48453

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau guuaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc auguugagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48454

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF33787

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuccaguga cauuggccgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg cauaggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccggg uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau ggaguugaau gcacccaauu uucauuauga ggaauguucu 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagaau uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugguauug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48455
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF33798

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca ucacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48456
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41672

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagga ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48457
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41683

<400> 48457
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48458
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41749

<400> 48458
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag ggauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauucgcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48459
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41760

<400> 48459
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucgugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48460
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41771

<400> 48460
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

auaacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48461
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41793

<400> 48461
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48462
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41804

<400> 48462
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggggа ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48463
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41826

<400> 48463

augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48464
<211> 1365
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACF41837

<400> 48464
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agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaaacauca uuaccuauaa aaauagcacc 180

uggguaaagg acacaacuuc agugauauua accggcaauu caucucuuug ucccauccgu 240

gggugggcua uauacagcaa agacaauagc auaagaauug guuccaaagg agacguuuuu 300

gucauaagag agcccuuuau uucauguucu cacuuggaau gcaggaccuu uuuucugacc 360

caaggugccu uacugaauga caagcauuca agugggacug uuaaggacag aagcccuuau 420

agggccuuaa ugagcugccc ugucggugaa gcuccguccc cguacaauuc aagauuugaa 480

ucgguugcuu ggucagcaag ugcaugucau gauggcaugg gcuggcuaac aaucggaauu 540

ucagguccag auaauggagc aguggcugua uuaaaauaca acggcauaau aacugaaacc 600

auaaaaaguu ggaggaagaa aauauugagg acacaagagu cugaaugugc cuguguaaau 660

gguucauguu uuacuauaau gacugauggc ccgagugaug ggcuggccuc guacaaaauu 720

uucaagaucg aaaaggggaa gguuacuaaa ucaauagagu ugaaugcacc uaauucucac 780

uaugaggaau guuccuguua cccugauacc ggcaaaguga ugugugugug cagagacaau 840

uggcaugguu cgaaccggcc augggugucu uucgaucaaa accuggauua ucaaauagga 900

uacaucugca gugggguuuu cggugacaac ccgcgucccg aagauggaac aggcagcugu 960

gguccagugu auguugaugg agcaaacgga guaaagggau uuucauauag guaugguaau 1020

gguguuugga uaggaaggac caaaagucac aguuccagac augggguuga gaugauuugg 1080

gauccuaaug gauggacaga gacugauagu aaguucucug ugaggcaaga uguuguggca 1140

augacugauu ggucagggua uagcggaagu uucguucaac auccugagcu gacagggcua 1200

gacuguauga ggccgugcuu cuggguugaa uuaaucaggg gacgaccuaa agaaaaaaca 1260

aucuggacua gugcgagcag cauuucuuuu uguggcguga auagugauac uguagauugg 1320

ucuuggccag acggugcuga guugccauuc agcauugaca aguag 1365

<210> 48465
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41881

<400> 48465
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48466
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41892

<400> 48466
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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48467
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41903

<400> 48467
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48468
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41914

<400> 48468
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau aucuuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48469
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41925

<400> 48469
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

ugggugaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuugcccua uccgugggug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca gaaucuucaa aaucgagaag 780

gggaagguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucugugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuaau cagagggcga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 48470
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF41936

<400> 48470
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauggcaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

ugggugaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuugcccua uccgugggug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca gaaucuucaa aaucgagaag 780

gggaagguua cuaaaucaau agaguuggau gcacccaauu aucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucugugaaa caggaugucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuaau cagagggcga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 48471
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54392

<400> 48471
augaauccaa aucaaaagau aauaacaauu ggcucuguau cucucaccac cgcaacagca 60

ugcuuccuca cgcagaucgc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauucugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agauuuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc cgguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48472
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACF54403

<400> 48472
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48473
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54414

<400> 48473
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48474
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54425

<400> 48474
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48475
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACF54436

<400> 48475

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucaac auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48476

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54447

<400> 48476
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48477
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACF54469

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga acuaggcaag uguguauggc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48478
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54480

<400> 48478
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugguagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48479
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACF54502

<400> 48479
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuucauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48480
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54513

<400> 48480
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuucauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48481
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACF54524

<400> 48481
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ugcuucuuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuucauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48482
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54535

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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacaa agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48483
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54557

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ugcuuccuua ugcaaauagc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaua auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggaga cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuuuucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccuggauccu 1020

aacaaugaag aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagguu augaaaccuu caaggucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugaaaga 1200

gguaauaugu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48484
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACF54568

<400> 48484
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ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugagg aaggugguca uggagugaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaacaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48485
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54579

<400> 48485

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

auaacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48486
<211> 1362
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACF54601

<400> 48486
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agccuaauau ugcaaauagg aaauauaauc ucaauaugga uuagccauuc aauucaaacc 120

ggaaaucaaa accauacugg aauaugcaac caaggcagca uuaccuauaa aguuguugcu 180

gggcaggacu caacuucagu gauauuaacc ggcaauucau cucuuugucc cauccguggg 240

ugggcuauac acagcaaaga caauggcaua agaauugguu ccaaaggaga cguuuuuguc 300

auaagagagc cuuuuauuuc auguucucac uuggaaugca ggaccuuuuu ucugacucaa 360

ggcgccuuac ugaaugacaa gcauucaagg gggaccuuua aggacagaag cccuuauagg 420

gccuuaauga gcugcccugu cggugaagcu ccguccccgu acaauucaag guuugaaucg 480

guugcuuggu cagcaagugc augucaugau ggaaugggcu ggcuaacaau cggaauuucu 540

gguccagaug auggagcagu ggcuguauua aaauacaacg gcauaauaac ugaaaccaua 600

aaaaguugga ggaagaauau auugagaaca caagagucug aauguaccug uguaaauggu 660

ucauguuuua ccauaaugac cgauggccca agugaugggc uggccucgua caaaauuuuc 720

aagaucgaga aggggaaggu uacuaaauca auagaguuga augcaccuaa uucucacuac 780

gaggaauguu ccuguuaccc ugauaccggc aaagugaugu gugugugcag agacaauugg 840

cacgguucga accgaccaug gguguccuuc gaccaaaacc uagauuauaa aauaggauac 900

aucugcagug gggguuuucgg ugacaacccg cgucccaaag auggaacagg cagcuguggc 960

ccagugucug cugauggagc aaacggagua aagggauuuu cauauaagua ugguaauggu 1020

guuuggauag gaaggacuaa aagugacagu uccagacaug gguuugagau gauuugggau 1080

ccuaauggau ggacagagac ugauaguagg uucucuauga gacaagaugu uguggcaaug 1140

acugaucggu caggguacag cggaaguuuc guucaacauc cugagcuaac agggcuagac 1200

uguaugaggc cuugcuucug gguugaauua aucagggggc uaccugagga gaacgcaauc 1260

uggacuagug ggagcaucau uucuuuuugu ggugugaaua gugauacugu agauuggucu 1320

uggccagacg gugcugaguu gccguucacc auugacaagu ag 1362

<210> 48487
<211> 1350

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG50700

<400> 48487
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaac accaagcuga gccaaucagc aauacuaauu uucuuaccga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaccu cuuugcccca uuaguggguug ggccguacac 240

aguaaggaca auaguauaag gaucgguucu aagggggaug uguuuguuau aagagaaccg 300

uucaucucgu gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacuguuaaa gacaggagcc cucacagaac acuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugccu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa guacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaaugggcag gcaucauaua aaaucuucaa aauggaaaaa 720

gggaaggugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccagcga agucacaugu gugugcagag auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggguauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguсc gguguccacu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggaguggc uuugaaauga uuugggauuc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48488
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG70145

<400> 48488
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauagga ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48489
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG70156

<400> 48489
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48490
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG80407

<400> 48490
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcaaaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacagcacgu gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagug 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48491
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG80411

<400> 48491
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacagcaggu gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaug guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagug 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag agggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48492
<211> 1407
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG80421

<400> 48492
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucugacac agcacgugau aggaccccuu aucggacccu auugaugaau 480

gaguuaggug uuccuuuuca ucuggggacc aagcaagugu gcauagcaug guccagcuca 540

aguugucacg auggaaaagc auggcugcau guuuguauaa cgggggauga uaaaaaugca 600

acugcuagcu ucauuuacaa ugggaggcuu guagauagug uuguuucaug guccaaagaa 660

auccucagga cccaggaguc agaaugcguu uguaucaaug gaacuuguac aguagugaug 720

acugauggga gugcuucagg agaagcugau acuaaaauac uauucauuga ggaggggaaa 780

aucguucaua cuagcacauu gucaggaagu gcucagcaug ucgaggagug cuccugcuau 840

ccucgauauc cuggugucag augugucugc agagacaacu ggaaaggcuc caauaggccc 900

aucguagaua uaaacauaaa ggaucauagc auuguuucca guuaugugug uucaggacuu 960

guuggagaca cacccagaaa aaacgacagc uccagcagua gccauuguuu ggauccuaac 1020

aaugaagagg guggucaugg agugaaaggc ugggccuuug augauggaaa ugacgugugg 1080

augggaagaa cgaucagcga gaagucacgc uuaggguaug aaaccuucaa agucauugaa 1140

ggcuggucca acccuaaguc caaauugcag auaaauaggc aagucauagu ugacagaggu 1200

aauagguccg guuauucugg uauuuucucu guugaaggca aaagcugcau caaucggugc 1260

uuuuaugugg aguugauaag gggaagaaaa gaggaaacug aagucuugug gaccucaaac 1320

aguauuguug uguuuugugg caccucaggu acauauggaa caggcucaug gccugauggg 1380

gcggacauca aucucaugcc uauauaa 1407

<210> 48493
<211> 1407
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACG80427

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucugacac agcacgugau aggaccccuu aucggacccu auugaugaau 480

gaguuaggug uuccuuuuca ucuggggacc aagcaagugu gcauagcaug guccagcuca 540

aguugucacg auggaaaagc auggcugcau guuuguauaa cgggggauga uaaaaaugca 600

acugcuagcu ucauuuacaa ugggaggcuu guagauagug uuguuucaug guccaaagaa 660

auccucagga cccaggaguc agaaugcguu uguaucaaug gaacuuguac aguagugaug 720

acugauggga gugcuucagg agaagcugau acuaaaauac uauucauuga ggaggggaaa 780

aucguucaua cuagcacauu gucaggaagu gcucagcaug ucgaggagug cuccugcuau 840

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aucguagaua uaaacauaaa ggaucauagc auuguuucca guuaugugug uucaggacuu 960

guuggagaca cacccagaaa aaacgacagc uccagcagua gccauuguuu ggauccuaac 1020

aaugaagagg guggucaugg agugaaaggc ugggccuuug augauggaaa ugacgugugg 1080

augggaagaa cgaucagcga gaagucacgc uuaggguaug aaaccuucaa agucauugaa 1140

ggcuggucca acccuaaguc caaauugcag auaaauaggc aagucauagu ugacagaggu 1200

aauagguccg guuauucugg uauuuucucu guugaaggca aaagcugcau caaucggugc 1260

uuuuaugugg aguugauaag gggaagaaaa gaggaaacug aagucuugug gaccucaaac 1320

aguauuguug uguuuugugg caccucaggu acauauggaa caggcucaug gccugauggg 1380

gcggacauca aucucaugcc uauauaa 1407

<210> 48494
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG80437

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua acuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaaucuuua ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguca cgcucagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48495
<211> 1407
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG80446

<400> 48495
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucugacac agcacgugau aggaccccuu aucggacccu auugaugaau 480

gaguuaggug uuccuuuuca ucuggggacc aagcaagugu gcauagcaug guccagcuca 540

aguugucacg auggaaaagc auggcugcau guuuguauaa cgggggauga uaaaaaugca 600

acugcuagcu ucauuuacaa ugggaggcuu guagauagug uuguuucaug guccaaagaa 660

auccucagga cccaggaguc agaaugcguu uguaucaaug gaacuuguac aguagugaug 720

acugauggga gugcuucagg agaagcugau acuaaaauac uauucauuga ggaggggaaa 780

aucguucaua cuagcacauu gucaggaagu gcucagcaug ucgaggagug cuccugcuau 840

ccucgauauc cuggugucag augugucugc agagacaacu ggaaaggcuc caauaggccc 900

aucguagaua uaaacauaaa ggaucauagc auuguuucca guuaugugug uucaggacuu 960

guuggagaca cacccagaaa aaacgacagc uccagcagua gccauuguuu ggauccuaac 1020

aaugaagagg guggucaugg agugaaaggc ugggccuuug augauggaaa ugacgugugg 1080

augggaagaa cgaucagcga gaagucacgc uuaggguaug aaaccuucaa agucauugaa 1140

ggcuggucca acccuaaguc caaauugcag auaaauaggc aagucauagu ugacagaggu 1200

aauagguccg guuauucugg uauuuucucu guugaaggca aaagcugcau caaucggugc 1260

uuuuaugugg aguugauaag gggaagaaaa gaggaaacug aagucuugug gaccucaaac 1320

aguauuguug uguuuugugg caccucaggu acauauggaa caggcucaug gccugauggg 1380

gcggacauca aucucaugcc uauauaa 1407

<210> 48496
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG80455

<400> 48496
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacagcacgu gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagug 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag agggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48497
<211> 1407
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG80464

<400> 48497
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucugacac agcacgugau aggaccccuu aucggacccu auugaugaau 480

gaguuaggug uuccuuuuca ucuggggacc aagcaagugu gcauagcaug guccagcuca 540

aguugucacg auggaaaagc auggcugcau guuuguauaa cgggggauga uaaaaaugca 600

acugcuagcu ucauuuacaa ugggaggcuu guagauagug uuguuucaug guccaaagaa 660

auccucagga cccaggaguc agaaugcguu uguaucaaug gaacuuguac aguagugaug 720

acugauggga gugcuucagg agaagcugau acuaaaauac uauucauuga ggaggggaaa 780

aucguucaua cuagcacauu gucaggaagu gcucagcaug ucgaggagug cuccugcuau 840

ccucgauauc cuggugucag augugucugc agagacaacu ggaaaggcuc caauaggccc 900

aucguagaua uaaacauaaa ggaucauagc auuguuucca guuaugugug uucaggacuu 960

guuggagaca cacccagaaa aaacgacagc uccagcagua gccauuguuu ggauccuaac 1020

aaugaagagg guggucaugg agugaaaggc ugggccuuug augauggaaa ugacgugugg 1080

augggaagaa cgaucagcga gaagucacgc uuaggguaug aaaccuucaa agucauugaa 1140

ggcuggucca acccuaaguc caaauugcag auaaauaggc aagucauagu ugacagaggu 1200

aauagguccg guuauucugg uauuuucucu guugaaggca aaagcugcau caaucggugc 1260

uuuuaugugg aguugauaag gggaagaaaa gaggaaacug aagucuugug gaccucaaac 1320

aguauuguug uguuuugugg caccucaggu acauauggaa caggcucaug gccugauggg 1380

gcggacauca aucucaugcc uauauaa 1407

<210> 48498
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACG80473

<400> 48498
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaaaug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacagcacgu gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcuacugcua gcuucauuua cgaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagug 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag agggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48499
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACH69559

<400> 48499
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48500
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACH69570

<400> 48500
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaauaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48501
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACH69581

<400> 48501
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gggaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48502
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACH69592

<400> 48502
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucag 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 48503
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACH69603

<400> 48503
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ugcuuccuua ugcaaauugu cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 48504
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACH69614

<400> 48504
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 48505
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI22525

<400> 48505
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48506
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI22526

<400> 48506
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48507
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI22527

<400> 48507
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48508
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACI22528

<400> 48508
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48509
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI22529

<400> 48509
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48510
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI22530

<400> 48510
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48511
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI22532

<400> 48511
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48512
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI22533

<400> 48512
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48513
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI22534

<400> 48513
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48514
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI25727

<400> 48514
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcaacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau uaaagaggga 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc cgguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48515
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI25749

<400> 48515
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcaag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gcauauauaa 1410

<210> 48516
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI25760

<400> 48516
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gcauauauaa 1410

<210> 48517
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI25771

<400> 48517
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gcauauauaa 1410

<210> 48518
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI25782

<400> 48518
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48519
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACI25793

<400> 48519

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucuguu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48520

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI25804

<400> 48520
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gaucaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48521
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26277

<400> 48521
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaaacaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuucauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcgacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucaa caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cggguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48522
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26299

<400> 48522
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48523
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACI26321

<400> 48523
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcacuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaagucg cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48524
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26354

<400> 48524
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48525
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26365

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugacagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aagguguuca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48526
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26376

<400> 48526
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48527
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26387

<400> 48527
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaua acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgau agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48528
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26420

<400> 48528
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac aguuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48529
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26431

<400> 48529

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48530
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACI26442

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agagagggca gcugcaaucc agugacuauu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48531
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26453

<400> 48531
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agagagggca gcugcaaucc agugacuauu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48532
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26464

<400> 48532
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ugcuucuuca ugcaaauugc caucuugaua gcuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcacuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaagucg cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48533
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26475

<400> 48533
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcacuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaagucg cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48534
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26486

<400> 48534
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48535
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26497

<400> 48535
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48536
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACI26508

<400> 48536
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48537
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26519

<400> 48537
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu aagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 48538
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26530

<400> 48538
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48539
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26541

<400> 48539
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48540
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26552

<400> 48540
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuccugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugauaaaaau 600

gcaacugcaa gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcagaca ucaaucucau gccuauauaa 1410

<210> 48541
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACI26574

<400> 48541
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu ccccccccaaa caaccaagua augccgugcg aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac aucaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuuggguaac aagagaaccu 360

uaugugucau gcgauccuag caaguguuau caauuugcac uugggcaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ucucuugaug 480

aacgaguugg guguuccauu ucauuuggga accaggcaag ugugcauggc augguccagc 540

ucaagcugcc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauacuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguggagga gugcuccugu 840

uauccucgau acccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agauccagca guagcuauug ccggaauccu 1020

aauaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cuagagucug guggaccuca 1320

aacaguauug uuguguuuug cggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48542
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI26585

<400> 48542
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaacau 120

gagugcaacu ccccccccaaa caaccaagua augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uaggacaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuguuuc augguccaaa 660

aauguccuca ggacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc guugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggagcca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccacaccuaa cuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uagaauugau aaggggaagg aaacaggaaa cuaaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48543
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32764

<400> 48543
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauggcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aguuacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48544
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32765

<400> 48544
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uaguugcuag aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuua ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucagu agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48545
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32766

<400> 48545
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

ugcuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48546
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32767

<400> 48546
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aacccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcguaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

ugcuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48547
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32768

<400> 48547
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu cgcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauaucaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48548
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32769

<400> 48548
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucaccuauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

auuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccaag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48549
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32770

<400> 48549
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gaugggggcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaaugggugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48550
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32771

<400> 48550
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauaa aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaagggcaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48551
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32772

<400> 48551
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugc ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48552
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32773

<400> 48552
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48553
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32774

<400> 48553
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48554
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32775

<400> 48554
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48555
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32776

<400> 48555
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauaa aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48556
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32777

<400> 48556
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauaa aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucgc cauugacaag uag 1413

<210> 48557
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32778

<400> 48557
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggu uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48558
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32779

<400> 48558
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuugcucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48559
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32780

<400> 48559
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuugcucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48560
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32781

<400> 48560
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaacg uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuugcucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48561
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32782

<400> 48561
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gauugaaaag 780

gggaaggcua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agaaagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48562
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACI32783

<400> 48562
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggu ugucuuuuaa ucaaaacuug gauuaucaaa uaggauauau cugcagugga 960

gugaucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcug acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagcgauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48563
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32784

<400> 48563
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gauugaaaag 780

gggaaggcua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agagagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48564
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32785

<400> 48564
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucauuc aauccaaacu 120

ggaagucaaa accacacugg aaugugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggagcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

gcagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuaaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48565
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32787

<400> 48565
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agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacacuaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaggu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua ccaaaacaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccc 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau ggugguacug cagacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48566
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32788

<400> 48566
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aacaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacaugugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cacuggucgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caagggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agaaucugaa uguguuugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcaccuaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc aaugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48567
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32790

<400> 48567
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac acgagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

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cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggagcugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48568
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32791

<400> 48568
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48569
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32793

<400> 48569
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uaguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48570
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32794

<400> 48570
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ugcuuccuua cgcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugcaaca uuacuggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucuggguuac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuauaggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauagguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccu auugucaggg agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gauaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48571
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32795

<400> 48571
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48572
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32796

<400> 48572
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguagca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauagaaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag acauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48573
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACI32797

<400> 48573

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguagca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauagaaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggagu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag acauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48574

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32798

<400> 48574
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaac 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucgucc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca cggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48575
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32799

<400> 48575
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu aauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48576
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32800

<400> 48576
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caaacaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48577
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32802

<400> 48577
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48578
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32803

<400> 48578
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48579
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32804

<400> 48579
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaucaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48580
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32805

<400> 48580
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugucucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguugcc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu guuacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac cgcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu ucgaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48581
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32806

<400> 48581
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacgguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48582
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32807

<400> 48582
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cagguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48583
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32808

<400> 48583

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagagaaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48584
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACI32809

<400> 48584
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48585
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32810

<400> 48585
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cucaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caauggaagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48586
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32811

<400> 48586
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcugaua ucaaucucau gccuauauaa 1410

<210> 48587
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32812

<400> 48587
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaacga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gauauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu aauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaagaauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaccgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaagaaa cugaagucuu guggaccuca 1320

aacaguauug uuguauuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48588
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACI32814

<400> 48588
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacagcauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48589
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACJ53848

<400> 48589
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagcuga accaaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguga cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucggcucc agggggggaug uauuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa guacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggccag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugagauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48590
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACJ53849

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagcuga accaaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uagugggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuacga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguagucc gguguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48591
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACJ53853

<400> 48591
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auauaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuuuggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48592
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACJ53866

<400> 48592
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

ggaaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aggggagaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg ucaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaauaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuucg uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc caaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuucgu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48593
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACJ53867

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agcuuaaugu uacaaauugg gaacaugauc ucacuauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagcuga accaauuagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaagaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugcggucc gguguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc uaggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gacuagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48594
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACJ53875

<400> 48594
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agcuuaaugu uacagauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagcuga accgaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcuagugcuu gccaugaugg caucaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcuguag cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac uaagaacuca agaaucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggaa gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu guguguaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaaucug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc aguguccccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagug ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 48595
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACJ53876

<400> 48595
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agcuuaaugu uacaaauugg gaacauaauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagcuga accaaucagc aauacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccccu 960

aacggggcau auggaguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

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ugcuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagc gacacuguug guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 48596
<211> 1404
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACJ67535

<400> 48596
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uguuuaauca ugcagauugc cgucuuagca acgacuauga cacuacauuu caacgaaugc 120

accaacccau cgaacaauca agcaaugcca ugugaaccaa ucauaauaga aaggaacaug 180

acagagauag ugcauuugaa uaauacuacc auagagaagg aaaguugucc uaaaguagca 240

gaauacaaga auuggucaaa accgcaaugu caaauuacag gguucgcccc uuucuccaag 300

gacaacucaa uuaggcuuuc ugcaggcggg gauauuuggg ugacaagaga accuuaugua 360

ucgugcgguc uugguaacug uuaccaauuu gcacuugggc agggaaccac uuugaacaac 420

aaacacucaa augacacaau acaugauagg agucccccaua gaacccuuuu aaugaacgag 480

uuagguguuc cauuucauuu gggaaccaaa caagugugca uagcaugguc cagcucaagc 540

ugccaugaug ggaaagcaug guuacauguu ugugucacug gggaugauag aaaugcgacu 600

gcuagcauca uuuaugaugg gaugcuuacc gacaguauug guucaugguc uaagaacauc 660

cucagaacuc aggagucaga augcguuugc aucaauggaa cuuguacagu aguaaugacu 720

gauggaagug caucaggaag ggcugauacu aaaauacuau ucauuagaga agggaaaauu 780

guccacauua guccacuguc aggaagugcu caacaugugg aggaaugcuc cuguuacccc 840

cgguauccag aaguuagaug uguuugcaga gacaauugga agggcuccaa uagacccgug 900

cuauauauaa auguggcaga uuauaguguu gauucuaguu augugugcuc aggacuuguu 960

ggcgacacac caagaaauga cgauagcucc agcagcagua acugcaggga ucccaauaac 1020

gagagagggg gcccaggagu gaaagggugg gccuuugaca auggaaauga uguuuggaug 1080

ggacgaacaa ucaagaaaga uucgcgcucu gguuaugaga cuuucagggu cguugguggu 1140

uggacuacgg cuaauuccaa gucacaaaua aauaggcaag ucauaguuga cagugauaac 1200

uggucugggu auucugguau auucucuguu gaaggaaaaa ccugcaucaa cagguguuuu 1260

uauguggagu ugauaagagg gagaccacag gagaccagag uaugguggac uucaaauagc 1320

aucauuguau uuuguggaac uucagguacc uauggaacag gcucauggcc ugauggagcg 1380

aauaucaauu ucaugucuau auaa 1404

<210> 48597
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACK99424

<400> 48597
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua auuccauguc aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuag caaauguuau caauuugcac uuggacaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaagucguuc auauuagccc auugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggagguuggu ccacaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cuaaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48598
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACK99435

<400> 48598
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuauggaca guauugguuc augguucuca 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auaguaauug caggaauccu 1020

aacaaugaga gaggaaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagaug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48599
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACK99446

<400> 48599
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agucuaacau ugcaaauagg aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

ugggugaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gacuguuaag gacagaagcc cucauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca gaaucuucaa aaucgagaag 780

gggaagguua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagauu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccguucac cauugacaag uag 1413

<210> 48600
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACK99457

<400> 48600
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaacau 120

gagugcaacu cccccccaaa caaccaagua augccgugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uaggacaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuguuuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauaa auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc guugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggagcca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccacaccuaa cuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uagaauugau aaggggaagg aaacaggaaa cuaaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48601
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACK99468

<400> 48601
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauugcaau uggaauaauu 60

agucugauau ugcaaauagg aaauauuauu ucaauauggg cuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

accucaauga cauuggccgg caauucaucu cuuugcccua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg cuugggcugg cuaacaaucg gaauuucugg uccagauaau 600

ggggcagugg cuguacuaaa auacaacggc auaauaacug aaaccauuaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacaguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gcaucguaca gaaucuucaa aaucgagaag 780

gggagaguua cuaaaucaau agaguuggau gcacccaauu aucauuacga agaauguuca 840

uguuacccag acaccggcac agugaugugu gugugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagaaggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucaaugaaa caggauaucg uggcaaugac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agcgauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 48602
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACK99479

<400> 48602
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ugcuuccuua ugcaaauugc aauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagccc auuguuagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau aguauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 48603
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12066

<400> 48603
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag ugauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacugcu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 48604
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12132

<400> 48604
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcacuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucagcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc acucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48605
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12154

<400> 48605
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agagagggca gcugcaaucc agugacuauu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48606
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12165

<400> 48606
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuaccguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48607
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12176

<400> 48607
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuaccguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48608
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACL12198

<400> 48608
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccaccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48609
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12209

<400> 48609
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguucgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga augcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuacgu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48610
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12220

<400> 48610
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48611
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12242

<400> 48611
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48612
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACL12264

<400> 48612
augaauccaa aucagaaaau aauaaccauu ggaucaauca guauggcaau cggaauaauu 60

agccuaauau ugcaaauagu aaauauuauu ucaauauggg uuagccacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaauagcacc 180

uggguaaauc aaacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguccua uccgugggug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucccacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg gaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaaggu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaag 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca gaaucuucaa aaucgagaag 780

gggaagguua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acaccggcac agugaugugu gugugcagag acaauuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggaaaaggca gcugugaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagauu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguag uggcaaugac ugauugguca 1200

gggguauagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uaugagaccu 1260

ugcuucuggg uugaauuagu cagagggcgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau agugauacug caaacugguc uuggccagac 1380

ggugccgagu ugccauucac caucgacaag uag 1413

<210> 48613
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32275

<400> 48613
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuauggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaacgacgac agaucuagca auaguaauug caggaauccu 1020

aacaaugaga gaggaaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagaug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 48614
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACN32286

<400> 48614
augaauccaa auaaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacgg agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auuguuagga agugcucagc augucgagga augcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugugu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48615
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32493

<400> 48615
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48616
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32526

<400> 48616
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagcca caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau aucccggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48617
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32537

<400> 48617
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccugaugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau aguauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gauggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48618
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32807

<400> 48618
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucuguu ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48619
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACN32818

<400> 48619

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48620

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32829

<400> 48620
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau agggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaccc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48621
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32840

<400> 48621
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug uaaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48622
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32851

<400> 48622
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48623
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32862

<400> 48623
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48624
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32873

<400> 48624
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac gagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48625
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32884

<400> 48625
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48626
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<220>
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neuraminidase__InfluenzaA__ACN32895

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga augcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuacg uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48627
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACN32906

<400> 48627
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuucagcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48628
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32917

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugua aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aacggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48629
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32928

<400> 48629

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucuggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aacggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48630
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACN32939

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48631
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACN32950

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48632
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32961

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aacggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaauaucau gccuauauaa 1410

<210> 48633
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32972

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggaga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48634
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN32994

<400> 48634
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48635
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33005

<400> 48635
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcgaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48636
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACN33016

<400> 48636
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa ggacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48637
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33049

<400> 48637
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48638
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33060

<400> 48638
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48639
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33082

<400> 48639
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaua uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48640
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33093

<400> 48640
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48641
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33104

<400> 48641
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agucuaaugc ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucuccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48642
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33115

<400> 48642
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacuggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48643
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33126

<400> 48643
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caguucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcccuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acgggguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48644
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33148

<400> 48644
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cugugcuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guauuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48645
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACN33159

<400> 48645
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaaa augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48646
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48647
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33181

<400> 48647
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggaguaaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuacg uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48648
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33203

<400> 48648
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48649
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN33214

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agacagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48650
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN42984

<400> 48650
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagagc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gauugaaaag 780

ggaaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

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gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacaggcu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48651
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN42995

<400> 48651
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aagggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaauau ugagaacaca agagucugaa ugugucugug ugaacgggguc uuguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua ccaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaaa uag 1413

<210> 48652
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACN43006

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccgagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48653
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN43017

<400> 48653
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48654
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<212> RNA
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<220>
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48655
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<212> RNA
<213> Artificial Sequence

<220>
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucuggag accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaccagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48656
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN43050

<400> 48656
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48657
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN43061

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48658
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN43072

<400> 48658
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguguug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48659
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACN43083

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaac 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48660
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACN50231

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ccugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48661
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN50233

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa uaaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accacaauag agaaggaaau augccccaaa 240

uuagcagagu acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

uugacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

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cccauuguag auauaaacau aaaggauuau agcauuguuu cuaguuaugu uugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguccu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48662
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACN50245

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug gugcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugacaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggugauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48663
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN72609

<400> 48663
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cugugcuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa uguguuugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuauaaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48664
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACN72621

<400> 48664
augaauccaa aucagaagau aauaaucauu agcucaaucu guaugacaaa uggaauugcu 60

agcuugauau uacaaauugg gaacauaauc ucaauaugga uuagccauuc aauucaaacu 120

gggaaccaaa accagaccga aacaugcaau caaagcguua uuauuuacga aaacaacacu 180

uggguaaauc agacauaugu caacaucagu aacaacaauu uuguugcuga acagacagua 240

guuccaguga aauuaguggg caguucuccu cucugcccug uuaguggguug ggcuauauac 300

aguaaagaua acaguguaag aaucgguucc aaaggggaug uguuugucau aagagagcca 360

uucaucucau gcucccacuu ggaauguaga accuucuucu uaacucaagg ggcccugcug 420

aaugacaaac acuccaaugg aaccguuaaa gacagaagcc ccuaucgaac ccugaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu ugcuugguca 540

gcaagugcuu gccaugaugg cuccaguugg uugacaauug gaauuucugg cccggacaau 600

ggggcagugg cugugcugaa auacaaugac auaauaacag acacuaucaa gaguuggaaa 660

aacaacauau ugagaacaca agagucugaa ugugcaugcu ugaauggcuc uugcuuuacu 720

guaaugaccg auggaccaag uaaugggcag gccucauaca aaaucuucaa aauagaaaag 780

gggaaaguag ucaaaucagu cgaguugaau gcuccuaauu aucacuauga agaguguucc 840

uguuauccug auucugguga aaucauaugu gugugcaggg acaauuggca uggcucgaau 900

cgaccauggg ugucuuucaa ucagaaucug gaauaucaaa uaggauacau augcaguggg 960

guucucggag acaauccgcg cccuaaugau agaacaggca auuguggucc aguaucaucu 1020

cauggagcaa augggguaaa aggguuuucg uuuaaauacg gcgaugguau uuggauaggg 1080

agaacuaaaa gcacuaguuc aaggagcggu uuugagauga uuugggaccc aaacggaugg 1140

acuggaacag acaauaauuu cucaguaaag caagauauug uaggaauaac ugacuggaca 1200

ggauacagcg ggaguuuugu ccagcaucca gaauuaaccg gauuggauug uauuagaccu 1260

ugcuucuggg uugaacuaau cagagggaga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48665
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACN76503

<400> 48665
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48666
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36345

<400> 48666
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcagugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugacg ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48667
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36356

<400> 48667
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucacuau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauuacauuu caagcaauau 120

gaaugcaacu ccccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaagaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccugaauccu 1020

aacaaugagg aagggguca uggagugaaa ggcugggccu uugaugaugg aaaugaugug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48668
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACO36367

<400> 48668
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaucau cuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu aauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauuug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48669
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36400

<400> 48669
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cugugcuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

agaaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg auagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48670
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36411

<400> 48670
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ggcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48671
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36422

<400> 48671
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaucau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48672
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36433

<400> 48672
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaucau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48673
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACO36444

<400> 48673

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaaa augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg acuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacuggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc agaaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48674

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36466

<400> 48674
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ugcuucuuca ugcaaauugc uauucugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagcgua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau auagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48675
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36477

<400> 48675
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aauauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucggga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggcuu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48676
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36499

<400> 48676
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ugcuucuuca ugcaaauugc cauucugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgua 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48677
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36510

<400> 48677
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48678
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36543

<400> 48678
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauua cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48679
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36554

<400> 48679
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aagggggaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48680
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36565

<400> 48680
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48681
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO36576

<400> 48681
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggaga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguuggcaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaggucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48683
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO36609

<400> 48683

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcgccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uaggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48684
<211> 1410
<212> RNA
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<220>
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagguaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48685
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO36631

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag guaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48686
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO36653

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48687
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO36675

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ugccucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu cuaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48688
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO36686

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ugcuucuuca ugcaaauugc caucuugaua acuacuguga cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgaucauga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO37125

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

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gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

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aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<220>
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neuraminidase__InfluenzaA__ACO94511

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcaauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa gucaaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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neuraminidase__InfluenzaA__ACO94512

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aauaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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<220>
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<400> 48692
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ugcuucuuca ugcaaauugc cauuuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaccagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48693
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaagaaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48694
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACO94686

<400> 48694
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaac aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuucugcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaaa ucaaucucau gccuauauaa 1410

<210> 48695
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACO94697

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caauggaagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gggacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48696
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94708

<400> 48696
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acgggguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48697
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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<400> 48697
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuucugcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaaa ucaaucucau gccuauauaa 1410

<210> 48698
<211> 1410
<212> RNA
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<220>
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<400> 48698
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaaa gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48699
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO94763

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggagau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48700
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO94774

<400> 48700
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag aaauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauggc augguccagc 540

ucaaguuguc acgauggaag agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48701
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94785

<400> 48701
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugua aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48702
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94796

<400> 48702
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48703
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94807

<400> 48703
augaacccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaauau ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca uuacauauga aaacagcacc 180

ugggugaaua acacauaugu uaauauuaac aacaccaaug uuguugcuga aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaggu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggacc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua ccaaaacaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcagag acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggggagggca gcugcaaucc agugacuguu 1020

gauggagcag acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucaguuaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuuugu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugguacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48704
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94818

<400> 48704
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ggcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48705
<211> 1365
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACO94829

<400> 48705
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agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaaacauca uuaccuauaa aaauagcacc 180

uggguaaagg acacaacuuc agugauauua accggcaauu caucucuuug ucccauccgu 240

gggugggcua uauacagcaa agacaauagc auaagaauug guuccaaagg agacguuuuu 300

gucauaagag agcccuuuau uucauguucu cacuuggaau gcaggaccuu uuuucugacc 360

caaggugccu uacugaauga caagcauuca agugggacug uuaaggacag aagcccuuau 420

agggccuuaa ugagcugccc ugucggugaa gcuccguccc cguacaauuc aagauuugaa 480

ucgguugcuu ggucagcaag ugcaugucau gauggcaugg gcuggcuaac aaucggaauu 540

ucagguccag auaauggagc aguggcugua uuaaaauaca acggcauaau aacugaaacc 600

auaaaaaguu ggaggaagaa aauauugagg acacaagagu cugaaugugc cuguguaaau 660

gguucauguu uuacuauaau gacugauggc ccgagugaug ggcuggccuc guacaaaauu 720

uucaagaucg aaaaggggaa gguuacuaaa ucaauagagu ugaaugcacc uaauucucac 780

uaugaggaau guuccuguua cccugauacc ggcaaaguga ugugugugug cagagacaau 840

uggcaugguu cgaaccggcc augggugucu uucgaucaaa accuggauua ucaaauagga 900

uacaucugca gugggguuuu cggugacaac ccgcgucccg aagauggaac aggcagcugu 960

gguccagugu auguugaugg agcaaacgga guaaagggau uuucauauag guaugguaau 1020

gguguuugga uaggaaggac caaaagucac aguuccagac augggguuga gaugauuugg 1080

gauccuaaug gauggacaga gacugauagu aaguucucug ugaggcaaga uguuguggca 1140

augacugauu ggucagggua uagcggaagu uucguucaac auccugagcu gacagggcua 1200

gacuguauga ggccgugcuu cuggguugaa uuaaucaggg gacgaccuaa agaaaaaaca 1260

aucuggacua gugcgagcag cauuucuuuu uguggcguga auagugauac uguagauugg 1320

ucuuggccag acggugcuga guugccauuc agcauugaca aguag 1365

<210> 48706
<211> 1365
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACO94840

<400> 48706
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agccuaauau uacaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaaacauca uuaccuauaa aaauagcacc 180

uggguaaagg acacaacuuc agugauauua accggcaauu caucucuuug ucccauccgu 240

gggugggcua uauacagcaa agacaauagc auaagaauug guuccaaagg agacguuuuu 300

gucauaagag agcccuuuau uucauguucu cacuuggaau gcaggaccuu uuuucugacc 360

caaggugccu uacugaauga caagcauuca agugggacug uuaaggacag aagcccuuau 420

agggccuuaa ugagcugccc ugucggugaa gcuccguccc cguacaauuc aagauuugaa 480

ucgguugcuu ggucagcaag ugcaugucau gauggcaugg gcuggcuaac aaucggaauu 540

ucagguccag auaauggagc aguggcugua uuaaaauaca acggcauaau aacugaaacc 600

auaaaaaguu ggaggaagaa aauauugagg acacaagagu cugaaugugc cuguguaaau 660

gguucauguu uuacuauaau gacugauggc ccgagugaug ggcuggccuc guacaaaauu 720

uucaagaucg aaaaggggaa gguuacuaaa ucaauagagu ugaaugcacc uaauucucac 780

uaugaggaau guuccuguua cccugauacc ggcaaaguga ugugugugug cagagacaau 840

uggcaugguu cgaaccggcc augggugucu uucgaucaaa accuggauua ucaaauagga 900

uacaucugca gugggguuuu cggugacaac ccgcgucccg aagauggaac aggcagcugu 960

gguccagugu auguugaugg agcaaacgga guaaagggau uuucauauag guaugguaau 1020

gguguuugga uaggaaggac caaaagucac aguuccagac augggguuga gaugauuugg 1080

gauccuaaug gauggacaga gacugauagu aaguucucug ugaggcaaga uguuguggca 1140

augacugauu ggucagggua uagcggaagu uucguucaac auccugagcu gacagggcua 1200

gacuguauga ggccgugcuu cuggguugaa uuaaucaggg gacgaccuaa agaaaaaaca 1260

aucuggacua gugcgagcag cauuucuuuu uguggcguga auagugauac uguagauugg 1320

ucuuggccag acggugcuga guugccauuc agcauugaca aguag 1365

<210> 48707
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94851

<400> 48707
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cauaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48708
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94873

<400> 48708
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaau caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc uuccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48709
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94884

<400> 48709
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucggga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggcuu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48710
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO94906

<400> 48710
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag aaaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48711
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACO94917

<400> 48711
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucggga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggcuu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48712
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94928

<400> 48712
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuucagcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauaccaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48713
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94939

<400> 48713
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu ccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucggga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggcuu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48714
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94950

<400> 48714
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ugcuuccuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaagagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48715
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94961

<400> 48715
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caaacaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaauu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48716
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO94972

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ugcuucuuca ugcaaauugc uauucugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48717
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACO95156

<400> 48717

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ugcuucuuca ugcaaauugc cauucugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaac augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uaccguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucugga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugaag aaggugguca uggagugaag ggcugggccu uugaugaugg aaaugacgua 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48718

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95174

<400> 48718
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauaccaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48719
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95185

<400> 48719
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48720
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95196

<400> 48720
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ugcuucuuca ugcaaauugc cauucugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag aaaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacgacacua 420

aacaacgugc auucaaauga cacaauacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggaucca 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgua 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48721
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95207

<400> 48721
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca gcagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug ggacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48722
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95218

<400> 48722
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aagaggaaga aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48723
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95229

<400> 48723
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ugcuuuuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugcuc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucauuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48724
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95240

<400> 48724
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaguucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48725
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95262

<400> 48725
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcagcu cuccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagcca caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggggaca uuugggugac aagggaaccu 360

uaugugucgu gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaucagccc acugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug ccugaauccu 1020

aacaaugagg aagggggguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuc cgcucagguu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48726
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95273

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcacuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaagucg cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48727
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95306

<400> 48727

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48728
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACO95385

<400> 48728
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag ugauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48729
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95407

<400> 48729
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaau caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc uuccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48730
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95418

<400> 48730
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaau caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc uuccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48731
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95429

<400> 48731
augaauccaa aucaaaagau aauaacaauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcagcau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcguggcug cauguuugug uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auauuagcac auugucggga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggcuu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaaguuau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48732
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95440

<400> 48732
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcacuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcc gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagagugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgau agcuccagua guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48733
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95462

<400> 48733
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gcuuauauaa 1410

<210> 48734
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95484

<400> 48734
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48735
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95495

<400> 48735
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48736
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95506

<400> 48736
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48737
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95517

<400> 48737
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcuuaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 48738
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACO95539

<400> 48738
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caguguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu aauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aagaggaaga aaagaggaaa cugaaguccu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48739
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACP20223

<400> 48739
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggauaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaguaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48740
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP41952

<400> 48740
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48741
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP44158

<400> 48741
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48742
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP44195

<400> 48742
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag ugauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ccaacauccu gaguuaacag gauugaacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48743
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP44217

<400> 48743
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcccc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acgaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48744
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP44228

<400> 48744
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acgaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48745
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP44239

<400> 48745
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucuuggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguug cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48746
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP44250

<400> 48746
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaug acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca auuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauua cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48747
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP44261

<400> 48747
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacaugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48748
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACP44272

<400> 48748
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguaaua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48749
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ55360

<400> 48749
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48750
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ63236

<400> 48750
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48751
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ63242

<400> 48751
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48752
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ63253

<400> 48752
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48753
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACQ63262

<400> 48753
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48754
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ65694

<400> 48754
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ugcuucuuca ugcaaauugc caucuuaaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaagug gucaaagccg caauguaaua uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gacauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccauaguag auauaaacau gaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48755
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ65705

<400> 48755
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ugcuucuuca ugcaaauugc caucuuaaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaagug gucaaagccg caauguaaua uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggagagg cuccaauagg 900

cccauaguag auauaaacau gaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48756
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ65716

<400> 48756
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uugaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48757
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ65727

<400> 48757
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa ggacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48758
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ65739

<400> 48758
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48759
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ65750

<400> 48759
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu aauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48760
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACQ65761

<400> 48760
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaau caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc uuccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauacag acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48761
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ73394

<400> 48761
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48762
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ73395

<400> 48762
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48763
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ73396

<400> 48763
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48764
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76291

<400> 48764
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48765
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76298

<400> 48765
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagua 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacc 720

auaaugaccg auggacccag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48766
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACQ76308

<400> 48766
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48767
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACQ76316

<400> 48767
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48768
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76322

<400> 48768
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48769
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76328

<400> 48769
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48770
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76335

<400> 48770
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagua 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48771
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACQ76342

<400> 48771

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga acuuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48772

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76351

<400> 48772
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaacaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48773
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76359

<400> 48773
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48774
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76364

<400> 48774
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48775
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ76367

<400> 48775
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48776
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACQ76379

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauaa aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg agccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48777
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48778
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<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48779
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<212> RNA
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neuraminidase__InfluenzaA__ACQ76403

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48780
<211> 1410
<212> RNA
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neuraminidase__InfluenzaA__ACQ76407

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48781
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ77603

<400> 48781

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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

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aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48782
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguucuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48783
<211> 1410
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ84460

<400> 48783
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48784
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ84470

<400> 48784
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuuuag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48785
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ84480

<400> 48785
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agucuauuau ugcagauagg aaauauaguc ucguuaugga uaagccauuc aauuaagacu 120

ggagaaaaaa accacucuga gauaugcaac caaaauauca uuacauauga aaacaaaaca 180

ugggugaacc aaacuuaugu aaacauuagc aauaccaaca uugcugaugg acagggcgug 240

acuucaauaa uacuagccgg caauuccucu cuuugcccaa uaaguggguug ggcuauauac 300

agcaaagaca auagcauaag gauugguucc aaaggagaca uuuuugucau aagagaacca 360

uucauuucau gcucucacuu ggagugcaga accuuuuuuc ugacccaagg ugcuuugcua 420

aaugacaggc auucuaaugg aaccgucaag gacaggagcc cuuaccgaac cuuaaugagc 480

ugcccgaccg gugaagcucc aucuccguau aauucaagau uugaaucagu ugcuugguca 540

gcaagugcau gccaugaugg aaugggaugg cuaacaaucg ggauuuccgg uccagauaau 600

ggagcagugg cuguuuugaa auacaauggu auaauaacag auacaauaaa aaguuggaga 660

aacaaaauac uaagaacaca agagucagaa uguguuugua uaaacgguuc auguuuuacu 720

auaaugacug auggcccaag caaugggcaa gccucguaca aaauauucaa aauggagaaa 780

gggaagauua uuaagucagu ugagcuggau gcaccuaauu accacuauga ggaaugcucc 840

uguuacccug auacaggcaa aguggugugu gugugcagag acaauuggca ugcuucaaau 900

cgaccguggg ucucuuucga ucagaaucuu gauuaucaga uaggguacau augcaguggg 960

guuuucggug auaacccgcg uucuaaugau gggaaaggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa aggauucuca uuuagauaug gcaauggugu uuggauagga 1080

agaacuaaaa guaucagcuc uagaagugga uuugagauga uuugggaucc aaauggaugg 1140

acggaaacug auaguaguuu cucuauaaag caggauauua uagcauuaac ugauugguca 1200

ggauacagug gaaguuuugu ccaacauccu gaauuaacag gaaugaacug cauaaggccu 1260

uguuuuuggg uagaguuaau cagaggacaa cccaaggaga gcacaaucug gacuagugga 1320

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gcugaucugc cauucaccau ugacaaguag 1410

<210> 48786
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ89891

<400> 48786
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacgga auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augccguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48787
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ89918

<400> 48787
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48788
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ89919

<400> 48788
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccgcuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48789
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACQ89920

<400> 48789
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48790
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ89921

<400> 48790
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48791
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ89922

<400> 48791
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48792
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACQ89923

<400> 48792
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48793
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACQ99623

<400> 48793
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48794
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99624

<400> 48794
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu agaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48795
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99626

<400> 48795
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48796
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99627

<400> 48796
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48797
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99628

<400> 48797
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48798
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99629

<400> 48798
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48799
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99630

<400> 48799
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48800
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99632

<400> 48800
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gauaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48801
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99633

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gauaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48802
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACQ99635

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48803
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACQ99636

<400> 48803
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48804
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACQ99684

<400> 48804
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcccugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugaacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48805
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACQ99824

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agucuauuau ugcagauagg aaauauaauc uuguuaugga ugagccauuc aauucagacu 120

ggagaaaaaa gccauccuaa gguaugcaac caaaguguca uuaccuauga aaacaacaca 180

ugggugaacc agacuuaugu aaacauuagc aauaccaaua uugcugcugg acagggugug 240

acuccaauaa uacuagccgg caauuccucu cuuugcccaa ucagugggug ggcuauauac 300

agcaaagaca auagcauaag gauugguucc aaaggagaca uuuuugucau gagagagcca 360

uucauuucau gcucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcuuugcug 420

aaugacaggc auucuaaugg aaccgucaag gacaggaguc cuuauagaac cuuaaugagc 480

ugccccaucg gugaagcucc aucuccguac aauucaaggu ucgaaucagu ugcuugguca 540

gcaagugcau gccaugaugg aaugggaugg cuaacaaucg ggauuuccgg uccagauaau 600

ggagcagugg cuguuuuaaa auacaauggu auaauaacag auacaauaaa aaguuggaga 660

aacaaaauau uaagaacaca agagucugaa uguguuugua uaaacgguuc guguuuuacu 720

auaaugacug acggcccaag caaugggcaa gccucguaca aauuauucaa aauggagaaa 780

gggaagauua uuaagucaau ugagcuggau gcaccuaauu accacuauga ggaaugcucc 840

uguuacccug auacaggcaa aguggugugu gugugcagag acaauuggca ugcuucgaau 900

cgaccauggg ucucuuucga ucagaaucuu gauuaucaaa uaggguacau augcaguggg 960

guuuucggug auaauccgcg uucuaaugau gggaaaggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa gggguuuuca uuuagauaug gcaauggugu uuggauagga 1080

agaacuaaaa guaucagcuc uagaagugga uuugagauga uuugggaucc uaauggaugg 1140

acagaaacug auaguaguuu cucuaugaag caagauauua uagcauuaac ugauuggucg 1200

ggauacagug gaaguuuugu ccaacauccu gaauuaacag gaaugaacug cauaaggccu 1260

uguuucuggg uagaguuaau cagagggcaa cccaaggaga gcacaaucug gacuagugga 1320

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gcugaucugc cauucaccau ugacaaguag 1410

<210> 48806
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR01015

<400> 48806
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcccugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48807
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR08422

<400> 48807
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48808
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08432

<400> 48808
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48809
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08442

<400> 48809
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48810
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08452

<400> 48810
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48811
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08462

<400> 48811
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48812
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08565

<400> 48812
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48813
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08566

<400> 48813
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48814
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACR08567

<400> 48814
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48815
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08568

<400> 48815
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggcuacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48816
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08569

<400> 48816
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48817
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08570

<400> 48817
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48818
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08571

<400> 48818
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48819
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08572

<400> 48819
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48820
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08573

<400> 48820
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagua 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48821
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08574

<400> 48821
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48822
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08576

<400> 48822
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48823
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR08577

<400> 48823
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48824
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR09378

<400> 48824
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48825
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR09379

<400> 48825

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48826

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR09380

<400> 48826
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucguaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48827
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR09381

<400> 48827
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48828
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR09382

<400> 48828
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48829
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR09383

<400> 48829
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gauaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48830
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR09384

<400> 48830
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48831
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR09385

<400> 48831
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48832
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR09386

<400> 48832
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuuuuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48833
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR10189

<400> 48833
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48834
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR10226

<400> 48834
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48835
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR10236

<400> 48835

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagacaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48836
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR10237

<400> 48836
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagacaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48837
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15186

<400> 48837
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ugcuucuuca ugcaaauugc caucuuaaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaagug gucaaagccg caauguaaua uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgac auccuggugu cagaugugug ugcagagaca acuggagagg cuccaauagg 900

cccauaguag auauaaacau gaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48838
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15197

<400> 48838
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aguuuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cucuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagccgugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48839
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15208

<400> 48839
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48840
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR15230

<400> 48840
auggauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccgcaaua 60

ugcuucuuca ugcaaauugc uauucugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggagaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca auagccauug cuuggaucca 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48841
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15241

<400> 48841
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacgacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48842
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15252

<400> 48842
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggaaggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggcaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaggaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48843
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15263

<400> 48843
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg aaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggucuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48844
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15274

<400> 48844
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg aaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48845
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15307

<400> 48845
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauaacaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauaccg caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48846
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR15318

<400> 48846
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacucaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aggcaaauau uaagaacaca agagucugaa ugugucugug ugaacgggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg uguccuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcaa acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uaa 1413

<210> 48847
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR15329

<400> 48847
augaauccaa aucaaaaaau aauaaccauc ggaucaauca guauagcaau cggaauaauu 60

agccuaaugu ugcaaauagg aaacauuauu ucaauauggg cuagucacuc aauccaaacu 120

agaagucaaa accacacugg aguaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuauugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaagcc ccuauagggc uuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcuuggucg 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca ggagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gaucgaaaag 780

ggaaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcga acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauuggucu 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccaaaagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug ugguguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguuuac cauugacaag uaa 1413

<210> 48848
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15340

<400> 48848
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaugga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaacaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acgaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48849
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15362

<400> 48849
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaugga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaacaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acgaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48850
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15373

<400> 48850
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggggaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaaaguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc caauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48851
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15428

<400> 48851
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucug ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugaccaaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acgaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48852
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15472

<400> 48852
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuccaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauagcau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccugacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucu 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagguga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48853
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15483

<400> 48853
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaau caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc uuccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48854
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15505

<400> 48854
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaau caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc uuccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48855
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15516

<400> 48855
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag ugauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48856
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15527

<400> 48856
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caaacaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc gggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48857
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15538

<400> 48857
augauuccaa uucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca auuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauua cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48858
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15549

<400> 48858
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 48859
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15560

<400> 48859
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu cuaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccccaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48860
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15582

<400> 48860
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuac caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48861
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15593

<400> 48861
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

caagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48862
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15604

<400> 48862
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaaugac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggugauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguauu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48863
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR15618

<400> 48863
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48864
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18924

<400> 48864
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48865
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18925

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48866
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18926

<400> 48866
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48867
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18927

<400> 48867
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48868
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACR18928

<400> 48868
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48869
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18929

<400> 48869
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucguaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48870
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18930

<400> 48870
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48871
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR18931

<400> 48871
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48872
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18933

<400> 48872
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48873
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18934

<400> 48873
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagua 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48874
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR18935

<400> 48874
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48875
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR23301

<400> 48875
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcccugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48876
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR32997

<400> 48876
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48877
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR33740

<400> 48877
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu ggcacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48878
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR38792

<400> 48878
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaacaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48879
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR38793

<400> 48879

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48880

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR38794

<400> 48880
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48881
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR38878

<400> 48881
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48882
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39357

<400> 48882
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48883
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39396

<400> 48883
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48884
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39406

<400> 48884
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48885
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39416

<400> 48885
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48886
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39426

<400> 48886
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48887
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39436

<400> 48887
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48888
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39446

<400> 48888
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48889
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39456

<400> 48889

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48890
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR39466

<400> 48890
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48891
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39476

<400> 48891
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48892
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39486

<400> 48892
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaaguguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48893
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR39496

<400> 48893
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48894
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR40291

<400> 48894
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48895
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR40301

<400> 48895
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48896
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR40311

<400> 48896
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48897
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR40321

<400> 48897
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

aaugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48898
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR40341

<400> 48898
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48899
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR40351

<400> 48899
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48900
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR40361

<400> 48900
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48901
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR40371

<400> 48901
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48902
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR40391

<400> 48902
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48903
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR46663

<400> 48903
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48904
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR46673

<400> 48904
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48905
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR46996

<400> 48905
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48906
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR46997

<400> 48906
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa aaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48907
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR46998

<400> 48907
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48908
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR46999

<400> 48908
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48909
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR47000

<400> 48909
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48910
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR47001

<400> 48910
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48911
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR47002

<400> 48911
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48912
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR47003

<400> 48912
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48913
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR47008

<400> 48913
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauauggc caguccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuggguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48914
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49267

<400> 48914
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48915
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49268

<400> 48915
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48916
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49269

<400> 48916
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48917
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49270

<400> 48917
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48918
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49271

<400> 48918
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48919
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49272

<400> 48919
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48920
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49273

<400> 48920
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48921
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49274

<400> 48921
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48922
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACR49275

<400> 48922
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuggguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48923
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49277

<400> 48923
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48924
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR49278

<400> 48924
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48925
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR49279

<400> 48925
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48926
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR50994

<400> 48926
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48927
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR50998

<400> 48927
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48928
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR51008

<400> 48928
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48929
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR51018

<400> 48929
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48930
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR51028

<400> 48930
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48931
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR51038

<400> 48931
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48932
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR51048

<400> 48932
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48933
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR51058

<400> 48933

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48934

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR51068

<400> 48934
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48935
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52371

<400> 48935
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48936
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52381

<400> 48936
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48937
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52391

<400> 48937
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48938
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52401

<400> 48938
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48939
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR52411

<400> 48939
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48940
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52421

<400> 48940
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48941
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52431

<400> 48941
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48942
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52441

<400> 48942
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48943
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52451

<400> 48943

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48944
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR52471

<400> 48944
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48945
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52481

<400> 48945
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48946
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR52491

<400> 48946
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48947
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR54046

<400> 48947
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48948
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR54052

<400> 48948
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48949
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR54966

<400> 48949
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48950
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR54976

<400> 48950
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48951
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR54986

<400> 48951
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48952
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACR54996

<400> 48952
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48953
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR55006

<400> 48953
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48954
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR56383

<400> 48954
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48955
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR56393

<400> 48955
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48956
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR56403

<400> 48956
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48957
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR56413

<400> 48957
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48958
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR56423

<400> 48958
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48959
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR56433

<400> 48959
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48960
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR56443

<400> 48960
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48961
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR56453

<400> 48961
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48962
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR58555

<400> 48962
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag ugauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48963
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR61658

<400> 48963
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguuacugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcagg accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gaccgaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau ugagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa aaucgaaaag 780

gggaagguua cuaaaucaau agaguuaaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaagggca gcuguaaucc agugacuguu 1020

gauggagcag acgggguuaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguugau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 48964
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR61680

<400> 48964
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uauaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48965
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR61691

<400> 48965
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccacaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48966
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR61702

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac aguuccagca guagcaauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 48967
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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<400> 48967
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggccauauac 300

agcaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48968
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 48968
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48969
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR67203

<400> 48969
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48970
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR67204

<400> 48970
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48971
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR67246

<400> 48971
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48972
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR67256

<400> 48972
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48973
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR77451

<400> 48973
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48974
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR77461

<400> 48974
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48975
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR77471

<400> 48975
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48976
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACR77481

<400> 48976
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48977
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR77491

<400> 48977
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48978
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR77501

<400> 48978
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48979
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACR83527

<400> 48979
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48980
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACR83539

<400> 48980
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48981
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS14669

<400> 48981
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48982
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS14679

<400> 48982
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48983
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS14689

<400> 48983
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48984
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS14699

<400> 48984
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48985
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS14709

<400> 48985
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48986
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS14719

<400> 48986
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48987
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACS14729

<400> 48987

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48988

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS14739

<400> 48988
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48989
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS27192

<400> 48989
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaccaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48990
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS27202

<400> 48990
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48991
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS27212

<400> 48991
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48992
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS27222

<400> 48992
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuuuag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48993
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS27232

<400> 48993
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48994
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS27242

<400> 48994
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48995
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS27252

<400> 48995
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48996
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS27771

<400> 48996
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccauggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuagauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48997
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS34969

<400> 48997

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48998
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACS34970

<400> 48998
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 48999
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS34971

<400> 48999
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49000
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS34972

<400> 49000
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa guauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49001
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS50081

<400> 49001
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49002
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS50087

<400> 49002
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49003
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS50094

<400> 49003
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49004
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS54264

<400> 49004
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49005
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS54265

<400> 49005
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49006
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS54266

<400> 49006
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49007
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS54267

<400> 49007
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49008
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<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49009
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<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49010
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49011
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS75824

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49012
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS77929

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49013
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS77939

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49014
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49015
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS77959

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49016
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS77969

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49017
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS77979

<400> 49017
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49018
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS77989

<400> 49018
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49019
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS77999

<400> 49019
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49020
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS78009

<400> 49020
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uuggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49021
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS78019

<400> 49021
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49022
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS78039

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49023
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS78049

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49024
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS88274

<400> 49024
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49025
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS88275

<400> 49025
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49026
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS92572

<400> 49026
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49027
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS92582

<400> 49027
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49028
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS92592

<400> 49028
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49029
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACS92603

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49030
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACS92614

<400> 49030
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuuuag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49031
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT09115

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49032
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT10309

<400> 49032
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49033
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT10315

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49034
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT11059

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49035
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15313

<400> 49035
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uuaacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49036
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15315

<400> 49036
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau gagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaugggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg ugucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug uauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49037
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15319

<400> 49037
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa gauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaggaga gcacaauuug gacuagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49038
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15321

<400> 49038
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gagagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacucaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagc 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaugggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49039
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15323

<400> 49039
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49040
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15325

<400> 49040
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggacg uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49041
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15327

<400> 49041
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucgau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuuccgg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguauaaaa uaggauauau augcagugga 900

auuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49042
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15331

<400> 49042
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49043
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15333

<400> 49043
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau uggaauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

ggaaaucaau gccaagguga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccua uuagcgggug ggcuguauac 240

aguaaggaca acaguauaag gaucggcucc aggggagaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga accuucuuuu ugacucaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaaucucugg uccagacaau 540

ggagcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augcuggcga aaucacaugu gugugcaggg auaauuggca ugguucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc aguggucucu 960

aaugggggcau augggguaaa aggguuuucg uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc uaggagcggc uuugaaauga uuugggaccc caaugggugg 1080

acuggaacgg acaguagcuu cucggggaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49044
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15335

<400> 49044
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucgau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuuccgg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa aaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaguguucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguauaaaa uaggauauau augcagugga 900

auuuucggag acaauccacg ccccaaugau ggaacaggca guuguggucc ggugcucccc 960

aacggggcau augggugaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49045
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15337

<400> 49045
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaguaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49046
<211> 1350
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15341

<400> 49046
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggacg uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccuguag gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

gucuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49047
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15344

<400> 49047
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

agcaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucaguaaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49048
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15346

<400> 49048
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acaacauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49049
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15348

<400> 49049
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau uggaacaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

ggaaaucaau gccaagguga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccua uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucggcucc aggggagaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga accuucuuuu ugacucaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaaucucugg uccagacaau 540

ggagcugugg ccguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca ugguucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau gggacaggua guuguggucc aguggucucu 960

aaugggcau augggguaaa aggguuuucg uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc uaggagcggc uuugaaauga uuugggaccc caaugggugg 1080

acuggaacgg acaguagcuu cucggggaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49050
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15350

<400> 49050
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucgau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuuccgg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguauaaaa uaggauauau augcagugga 900

auuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gaacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49051
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15352

<400> 49051
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

ggaaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccua uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucggcucc aggggagaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga accuucuuuu ugacucaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaaucucugg uccagacaau 540

ggagcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca ugguucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ucccaaugau ggaacaggua guugugguccc aguggucucc 960

aaugggggcau augggguaaa aggguuuucg uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc uaggagcggc uuugaaauga uuugggaccc caaugggugg 1080

acuggaacgg acaguagcuu cucggggaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49052
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15354

<400> 49052
augaauccaa gucagaagau aauaaccauc ggaucaauuu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauaugga ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gccucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aauaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaugggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggggu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49053
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15356

<400> 49053
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagccauuc aauucagaca 120

ggaaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccua uuagcggaug ggcuguauac 240

aguaaggaca acaguauaag gaucggcucc aggggagaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaaucucugg uccagacaau 540

ggagcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggagaag 720

gggaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca ugguucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc aguguucucu 960

aaugggggcau augggguaaa aggguuuucg uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc uaggagcggc uuugaaauga uuugggaccc caaugggugg 1080

acuggaacgg acaguagcuu uucggggaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauagu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49054
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT15358

<400> 49054
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucgau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacccaugg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuuccgg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaugggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccaugga uaucuuucaa ucaaaauuug gaguauaaaa uaggauauau augcagugga 900

auuuucggag acaauccacg ccccaaugau ggaacaggca guugugguccc ggugcucccc 960

aacggggcau augggugaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucggugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49055
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT21515

<400> 49055
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acaggaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucaggg agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagggaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49056
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT21516

<400> 49056
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagcgua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcguagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaaaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa augaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggaaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49057
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT21517

<400> 49057
augaauccaa aucaaaagau aauaacgauu ggcuccguuu cucucaccau uuccacaaua 60

ugcuucuuua ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucagagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuagugaug 480

aaugaguuag guguuccauu ucaucugggg acuaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca gaacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucaggg agugcccagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuugcuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49058
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT21574

<400> 49058
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugaaucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49059
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT21585

<400> 49059

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guguguaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49060
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACT22011

<400> 49060
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49061
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT22012

<400> 49061
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49062
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT22013

<400> 49062
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49063
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACT22014

<400> 49063
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49064
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT22015

<400> 49064
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49065
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT22016

<400> 49065
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49066
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT22017

<400> 49066
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49067
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT22018

<400> 49067
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49068
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT22506

<400> 49068
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcc 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49069
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT22511

<400> 49069
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49070
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT33121

<400> 49070
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49071
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT33124

<400> 49071
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49072
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT33126

<400> 49072
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49073
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT35526

<400> 49073
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaaa caagauaucg uaggaauaaa ugagugguca 1200

ggauauagug ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49074
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36507

<400> 49074
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49075
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36672

<400> 49075
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49076
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36673

<400> 49076
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49077
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36674

<400> 49077
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49078
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36675

<400> 49078
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49079
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36677

<400> 49079
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49080
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36678

<400> 49080
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuag acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49081
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36679

<400> 49081
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49082
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36680

<400> 49082
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49083
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36682

<400> 49083
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49084
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36683

<400> 49084
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacug acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49085
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36684

<400> 49085
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49086
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36685

<400> 49086
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49087
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36686

<400> 49087
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49088
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36687

<400> 49088
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49089
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36688

<400> 49089
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uacaaauaug gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49090
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACT36689

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49091
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36690

<400> 49091
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49092
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACT36691

<400> 49092
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49093
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36693

<400> 49093
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49094
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36694

<400> 49094
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49095
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT36695

<400> 49095
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49096
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT52684

<400> 49096
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gauaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49097
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT54608

<400> 49097
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagacaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49098
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT66157

<400> 49098
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuuaag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49099
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT67117

<400> 49099
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49100
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACT67121

<400> 49100
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49101
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT67240

<400> 49101
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49102
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT67241

<400> 49102
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaauuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49103
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACT67243

<400> 49103

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49104

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT67256

<400> 49104
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49105
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68161

<400> 49105
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaggcaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49106
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68162

<400> 49106
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49107
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68163

<400> 49107
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49108
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68164

<400> 49108
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49109
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68166

<400> 49109
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49110
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68167

<400> 49110
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49111
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68168

<400> 49111
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49112
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68169

<400> 49112
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggggaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaauga aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aaugggggcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaag ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49113
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68171

<400> 49113

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cuuaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc cugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49114
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACT68172

<400> 49114
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc cugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49115
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68173

<400> 49115
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49116
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68174

<400> 49116
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49117
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68175

<400> 49117
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49118
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68176

<400> 49118
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga gaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49119
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68177

<400> 49119
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49120
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68178

<400> 49120
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49121
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68179

<400> 49121
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49122
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT68180

<400> 49122
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49123
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT79145

<400> 49123
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49124
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT79155

<400> 49124
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuggugggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccucuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49125
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACT79165

<400> 49125
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcc 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49126
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT79175

<400> 49126
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcc 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49127
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT79185

<400> 49127
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49128
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT79622

<400> 49128
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg uccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49129
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT79630

<400> 49129
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49132
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT83818

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49133
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT83828

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uuggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49134
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT83838

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49135
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT83848

<400> 49135
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49136
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT83858

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49137
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT83868

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49138
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT83878

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49139
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86002

<400> 49139
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49140
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86012

<400> 49140
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49141
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86022

<400> 49141
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49142
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86032

<400> 49142
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49143
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86042

<400> 49143
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49144
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86052

<400> 49144
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49145
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86062

<400> 49145
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49146
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACT86072

<400> 49146
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49147
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86082

<400> 49147
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49148
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86092

<400> 49148
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49149
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86102

<400> 49149
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uguccuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uaucagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49150
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86112

<400> 49150
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49151
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86122

<400> 49151
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uuggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49152
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86132

<400> 49152
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49153
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT86142

<400> 49153
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49154
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACT97323

<400> 49154
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49155
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU00934

<400> 49155
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49156
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU00944

<400> 49156
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49157
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACU00954

<400> 49157

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49158

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU12497

<400> 49158
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uguuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcaacu cccccccaaa caaccaagua augccaugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agagggagau augccccaaa 240

cuaguagaau acagaaauug gucaaagccg caauguaggg uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuuccgcu gguggagaca uuugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac uaggacaggg aaccacacua 420

aacaacaggc auucaaauga cacaguacau gauaggaccc cuuaucgaac ccucuugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug ucacugggca ugaugaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaua guauuguuuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaguca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacgaucgg cgaggaguua cgcucagguu augaaaccuu caaagucauu 1140

ggaggcuggu ccacaccuaa cuccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uagaauugau aaggggaagg aaacaggaaa cuaaagucug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49159
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU12508

<400> 49159
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaau caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc uuccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49160
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU12519

<400> 49160
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauucugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

aaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggauuau agcauuguuu ccagcuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug cuuggaucca 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgua 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaccaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49161
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU12530

<400> 49161
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggaa ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49162
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU12541

<400> 49162
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu cuaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac aguuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaaugg cagauaaaua ggcaagucau aguugacaga 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49163
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU12552

<400> 49163
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccgguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cucggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49164
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU12574

<400> 49164
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

aaucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaaa gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acgggguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagggaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49165
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU12585

<400> 49165
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaau caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacaccaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc uuccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug cccagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug ugguguuaau agugauacug caaacugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49166
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACU12596

<400> 49166
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccgaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

aagucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg uccugaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49167
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU13077

<400> 49167

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaaa caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49168
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACU13078

<400> 49168
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49169
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU13079

<400> 49169
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49170
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU13080

<400> 49170
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49171
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACU13081

<400> 49171
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49172
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU13082

<400> 49172
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49173
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU13083

<400> 49173
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49174
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU13084

<400> 49174
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49175
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU16799

<400> 49175
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49176
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU16861

<400> 49176
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacugau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49177
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU16934

<400> 49177
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49178
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU16997

<400> 49178
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49179
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACU17130

<400> 49179
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49180
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU17191

<400> 49180
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49181
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU17262

<400> 49181
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa gucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49182
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU17325

<400> 49182
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49183
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU17393

<400> 49183
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49184
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU17454

<400> 49184
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49185
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU17524

<400> 49185
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49186
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU27043

<400> 49186
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49187
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU27415

<400> 49187
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuugccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc auccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcu gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49188
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU27416

<400> 49188
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuugccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc auccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcu gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

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ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49189
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU29961

<400> 49189
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49190
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU29971

<400> 49190
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49191
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU29981

<400> 49191
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49192
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 49192
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49193
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU30001

<400> 49193
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49194
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU30021

<400> 49194
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaacauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49195
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU30085

<400> 49195
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaauggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49196
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU30095

<400> 49196
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49197
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACU30105

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49198
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU30114

<400> 49198
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49199
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU30123

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49200
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACU31177

<400> 49200
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuu aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaguugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49201
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31178

<400> 49201
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49202
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31179

<400> 49202
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49203
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31180

<400> 49203
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49204
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31181

<400> 49204
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49205
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31182

<400> 49205
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49206
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31183

<400> 49206
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49207
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31184

<400> 49207
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49208
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31185

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc cugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49209
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31186

<400> 49209
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc cugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49210
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU31187

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc cugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49211
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACU31188

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49212

<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU46645

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agcuuaaugu uacaaauugg gaacuugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucaac acaaagcuga accaaucagc aauacuaauc uucuuacuga gaaaacugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaauggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaagc acuccaaugg gacugucaaa gacagaaguc cucacagaac auuaaugagu 420

gguccugugg gugaggcucc cuccccauac aacucaaggu uugaguaugu ugcuugguca 480

gcaagugcuu gccaugaucg caccaguaga uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aauaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug acggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

ggaaaagugg uuaaaucagu cgaauuggau gcucccaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggagcaggua guugugguсc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaacaaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagcuu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

agcagcauau cuuuuugugg uguaaauagu gacacugugg guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 49213
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU56927

<400> 49213
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagauaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauauau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49214
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU56934

<400> 49214
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49215
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACU64791

<400> 49215
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49216
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU64811

<400> 49216
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuuaucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gcuccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49217
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU79885

<400> 49217
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gcauauauaa 1410

<210> 49218
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU79896

<400> 49218
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguccccaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 49219
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU79918

<400> 49219
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 49220
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU79929

<400> 49220
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacuggggа ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aauaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 49221
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU79940

<400> 49221
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauaguaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaauagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucauca cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagagccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gcgaagcucc gucuccauau aauucaaagu uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg uuaacaaucg gaauuucugg uccagauaau 600

ggagcagugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aagcgaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaaugggggcc gccucguaca aaaucuucaa gauugagaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu cucauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaauuggca cgguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagauaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagacu cagaaaggga uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acagugauuu cucagugaaa caggauguug uggcaaugac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gagcuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagaggacgg ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 49222
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACU79951

<400> 49222
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugaaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguuggcaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 49223
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU79973

<400> 49223
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49224
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU79984

<400> 49224
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49225
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80006

<400> 49225
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaagaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49226
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80017

<400> 49226
augaauacaa aucaaagaau aauaaccauu gggacaaucu gucuaauagu uggaauaauu 60

agucuauuau ugcagauagg aaauauaauc uuguuaugga ugagccauuc aauucagacu 120

ggagaaaaaa gccauccuaa gguaugcaac caaaguguca uuaccuauga aaacaacaca 180

ugggugaacc agacuuaugu aaacauuagc aauaccaaua uugcugcugg acagggugug 240

acuccaauaa uacuagccgg caauuccucu cuuugcccaa ucaguggguug ggcuauauac 300

agcaaagaca auagcauaag gauugguucc aaaggagaca uuuuugucau gagagagcca 360

uucauuucau gcucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcuuugcug 420

aaugacaggc auucuaaugg aaccgucaag gacaggaguc cuuauagaac cuuaaugagc 480

ugccccaucg gugaagcucc aucuccguac aauucaaggu ucgaaucagu ugcuugguca 540

gcaagugcau gccaugaugg aaugggaugg cuaacaaucg ggauuuccgg uccagauaau 600

ggagcagugg cuguuuuaaa auacaauggu auaauaacag auacaauaaa aaguuggaga 660

aacaaaauau uaagaacaca agagucugaa uguguuugua uaaacgguuc guguuuuacu 720

auaaugacug acggcccaag caaugggcaa gccucguaca aauuauucaa aauggagaaa 780

gggaagauua uuaggucaau ugagcuggau gcaccuaauu accacuauga ggaaugcucc 840

uguuacccug auacaggcaa aguggugugu gugugcagag acaauuggca ugcuucgaau 900

cgaccauggg ucucuuucga ucagaaucuu gauuaucaaa uaggguacau augcaguggg 960

guuuucggug auaauccgcg uucuaaugau gggaaaggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa gggguuuuca uuuagauaug gcaauggugu uuggauagga 1080

agaacuaaaa guaucagcuc uagaagugga uuugagauga uuugggaucc uaauggaugg 1140

acagaaacug auaguaguuu cucuaugaag caagauauua uagcauuaac ugauuggucg 1200

ggauacagug gaaguuuugu ccaacauccu gaauuaacag gaaugaacug cauaaggccu 1260

uguuucuggg uagaguuaau cagagggcaa cccaaggaga gcacaaucug gacuagugga 1320

agcagcauuu cuuucugugg cgugaacagu ggcacugcaa gcuggucaug gccagacgga 1380

gcugaucugc cauucaccau ugacaaguag 1410

<210> 49227
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80028

<400> 49227
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49228
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80039

<400> 49228
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49229
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80050

<400> 49229
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag ugauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49230
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80061

<400> 49230
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggaa ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49231
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80072

<400> 49231
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cugugcuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

agaaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg auagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49232
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80094

<400> 49232
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acgaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

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gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

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<212> RNA
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<220>

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<400> 49233

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49234

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<220>
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49235
<211> 1410
<212> RNA
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49236
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACU80160

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49237
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80171

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

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<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaua ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49239
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80193

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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagagugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggugauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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<212> RNA
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neuraminidase__InfluenzaA__ACU80204

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49241
<211> 1413
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80237

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaaaucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucgaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49242
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80248

<400> 49242
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49243
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80259

<400> 49243

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucuggggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49244
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACU80270

<400> 49244
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuagcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggauuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagug gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49245
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80281

<400> 49245
augaaccaaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49246
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80303

<400> 49246
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguaa uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49247
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80314

<400> 49247
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg gacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49248
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80325

<400> 49248
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49249
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80336

<400> 49249
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaccgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49250
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80347

<400> 49250
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacagg 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49252
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<212> RNA
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<400> 49252
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49253
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49254
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80391

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaucauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccu caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49255
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaccgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49256
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80413

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucggu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaauuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49257
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80427

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49258
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80438

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49259
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80461

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augagaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49260
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80603

<400> 49260
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauga 1410

<210> 49261
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80614

<400> 49261
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49262
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80625

<400> 49262
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacagggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49263
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80636

<400> 49263
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49264
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80647

<400> 49264
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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggugauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49265
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80658

<400> 49265
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaaaaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49266
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80669

<400> 49266
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49267
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACU80691

<400> 49267
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49268
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80702

<400> 49268
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49269
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACU80713

<400> 49269
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaccau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49270
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACU80724

<400> 49270
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49271
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACU80735

<400> 49271
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacauca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49272
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80746

<400> 49272
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augagaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49273
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80757

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agguagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc auggucaagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49274
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80768

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ugcuucuuca ugcaaacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc ucggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggugauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49275
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU80779

<400> 49275
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49276
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACU80790

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49277
<211> 1410

<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACU80801

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49278
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACU81106

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaguu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49279
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACU87265

<400> 49279
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49280
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACU87273

<400> 49280
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49281
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04231

<400> 49281
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49282
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04241

<400> 49282
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49283
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04251

<400> 49283
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49284
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV04261

<400> 49284
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49285
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04271

<400> 49285
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uuggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49286
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04281

<400> 49286
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucggc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49287
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV04291

<400> 49287

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49288

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04301

<400> 49288
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49289
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04321

<400> 49289
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49290
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04331

<400> 49290
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49291
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04341

<400> 49291
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49292
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04351

<400> 49292
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49293
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04361

<400> 49293
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49294
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04371

<400> 49294
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49295
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04381

<400> 49295
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49296
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04391

<400> 49296
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49297
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV04401

<400> 49297

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49298
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV04411

<400> 49298
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49299
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04492

<400> 49299
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49300
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04502

<400> 49300
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49301
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04512

<400> 49301
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49302
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04522

<400> 49302
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg aaagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugcg uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49303
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04532

<400> 49303
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49304
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04542

<400> 49304
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggccag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49305
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV04552

<400> 49305
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aauuacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49306
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04562

<400> 49306
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49307
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACV04572

<400> 49307
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49308
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV04582

<400> 49308
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49309
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV04758

<400> 49309
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuc ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49310
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33087

<400> 49310
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggaga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49311
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33107

<400> 49311
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49312
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33117

<400> 49312
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49313
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33127

<400> 49313
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49314
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33137

<400> 49314
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49315
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33147

<400> 49315
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49316
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33157

<400> 49316
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuguug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49317
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33167

<400> 49317
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg auuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49318
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV33177

<400> 49318
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49319
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV41993

<400> 49319
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aauaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49320
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV42010

<400> 49320
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49321
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV42020

<400> 49321
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49322
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49504

<400> 49322
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gcauauauaa 1410

<210> 49323
<211> 1362
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49537

<400> 49323
augaauccaa accagaaaau aauaaccauu gggucaaucu guaugguagu cggaauaauu 60

agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacc 120

ggaaaucaaa accauacugg aauaugcaac caaggcauca uuaccuauaa cguuguugcu 180

gggcaggacu caacuucagu gauauuaacc ggcaauucau cucuuugucc cauccguggg 240

ugggcuauac acagcaaaga caauggcaua agaauugguu ccaaaggaga cguuuuuguc 300

auaagagagc cuuuuauuuc auguucucac uuggaaugca ggaccuuuuu ucugacucaa 360

ggcgccuuac ugaaugacaa gcauucaaau ggggccguua aggacagaag cccuuauagg 420

gccuuaauga gcugcccugu cggugaagcu ccguccccgu acaauucaag guuugaaucg 480

guugcuuggu cagcaagugc augucaugau ggcaugggcu ggcuaacaau cggaauuucu 540

gguccagaua auggagcagu ggcuguauua aaauacaacg gcauaauaac ugaaaccaua 600

aaaaguugga ggaagaaaau auugagaaca caagagucug aauguaccug uguaaauggu 660

ucauguuuua ccauaaugac cgauggccca agugaugggc uggccucgua caaaauuuuc 720

aagaucgaga aggggaaggu uacuaaauca auagaguuga augcaccuaa uucucacuac 780

gaggaauguu ccuguuaccc ugauaccggc aaagugaugu gugugugcag agacaauugg 840

cacgguucga accgaccaug gguguccuuc gaccaaaacc uagauuauca aauaggauac 900

aucugcagug gggguuuucgg ugacaacccg cgucccaaag auggaacagg cagcuguggc 960

ccagugucug cugauggagc aaacggagua aagggauuuu cauauaggua ugguaauggu 1020

guuuggauag gaaggacuaa aagugacagu uccagacaug gguuugagau gauuugggau 1080

ccuaauggau ggacagagac ugauaguagg uucucuguga gacaagaugu uguggcaaug 1140

acugaucggu caggguacag cggaaguuuc guucaacauc cugagcuaac agggcuagac 1200

uguaugaggc cuugcuucug gguugaauua aucaggggac gaccugagga gaaaacaauc 1260

uggacuagug ggagcaucau uucuuuuugu ggcgugaaua gugauacugu agauuggucu 1320

uggccagacg gugcugaguu gccguucacc auugacaagu ag 1362

<210> 49324
<211> 1362
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49559

<400> 49324
augaauccaa aucagaaaau aauaaccauu gggucaaucu guaugguagu cggaauaauu 60

agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaagcu 120

gggaguagca ccugggugaa ucaaacauau guuaauauua gcaacacuaa cguugucgcu 180

ggacaggacg caacuucagu gauauuaacc ggcaauucau cucuuugucc cauccguggg 240

ugggcuauau acagcaaaga caauggcaua agaauugguu ccaaaggaga cauuuuuguc 300

auaagagagc cuuuuauuuc auguucucac uuggaaugca gggccuuuuu ucugacucaa 360

ggcgccuuac ugaaugacaa gcauucaaau gggaccguua aggacagaag cccuuauagg 420

gccuuaauga gcugcccugu cggugaagcu ccguccccgu acaauucaag guuugaaucg 480

guugcuuggu cagcaagugc augucaugau ggcaugggcu ggcuaacaau cggaauuucu 540

gguccagaua augggggcagu ggcuguauua aaauacaacg gcauaauaac ugaaaccaua 600

aaaaguugga ggaagaaaau auugagaaca caagagucug aaugugccug uguaaauggu 660

ucauguuuua cuauaaugac cgauggccca agugaugggc cggccucgua caaaauuuuc 720

aagaucgaga aggggaaggu uacuaaauca auagaguugg augcaccuaa cucucacuac 780

gaggaguguu ccuguuaccc ugauaccggc aaagugaugu gugugugcag agacaauugg 840

cacgguucga accgaccaug gguguccuuuc gaucaaaacc uggauuauca aauaggauac 900

aucugcagug gggguuuucgg ugacacuccg cgucccaaag auggaacagg cagcuguggu 960

ccagugucug uugauggagc aaacggagug aagggauuuu cauauaggua uggugauggu 1020

guuuggauag gaaggacuaa aagucaaagu uccagacaug gguuugagau gauuugggau 1080

ccuaauggau ggacagagac ugauaguagg uucucuguga gacaagaugu uguggcaaua 1140

acugauuggu caggguacag cggaaguuuc guucaacauc cugagcuaac agggcuagac 1200

uguaugaggc cuugcuucug gguugaauua aucagggggc aaccuaaaga gaaaacaauc 1260

uggacuagug ggagcagcau uucuuuuugu ggcgugaaua gugauacugu agacuggucu 1320

uggccagacg gugcugaguu gccauucacc auugacaagu ag 1362

<210> 49325
<211> 1395
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49570

<400> 49325
augaauccaa aucagaaaau aauaaccauu ggaucaaucu guaugguagu cggaauaauu 60

agccuaauau ugcaaauagg gaauauuguc ucaauaugga uuagccauuc aauucaaacu 120

ggaaaucaaa accauacugg aacuugcgac caaagcauca uuaccuauaa aaauagcacc 180

uggguaaauc aaacauaugu caacguuguu gcugggaagg auacaacuuc agugauauua 240

gccggcaauu caucucuuug cccuauccgu gggugggcua uauacagcaa agauaauggc 300

guaagaauug guuccaaagg agauguuuuu gucauaagag aacccuuuau uucauguucu 360

cacuuggaau gcaggaccuu uuuucugacc caaggcgccc uguugaauga caagcauuca 420

aaugggaccg uuaaggacag aagcccuuau agggccuuaa ugagcugccc uguuggugaa 480

gcuccguccc cguacaacuc aagguuugaa ucgguugcuu ggucagcaag ugcaugucau 540

gauggcaugg gcuggcuaac aaucggaauu ucugguccag augauggagc aguggcugug 600

uuaaaauaca acggcauaau aacugaaacc auaaaaaguu ggaggaagga aauauugaga 660

acacaagagu cugaaugugu cugcguaaau gguucauguu ucacuauaau gaccgacggc 720

ccgaguggug ggccggccuc guacaaaauu uucaagaucg agaaggggaa gguuacuaaa 780

ucaauagagu uggaugcacc uaauucucac uacgaggaau guuccuguua cccugauacc 840

agcaaaguga ugugugugug cagagacaau uggcacgguu cgaaccgacc augggugucu 900

uucgaucaaa aucuggauua ucaaauggga uacaucugca gugggguuuu cggugacaau 960

ccgcguccca aagauggaaa aggcagcugu gguccagugu auguugaugg agcaaacgga 1020

guaaagggau uuucauacaa guaugguaau gguguuugga uagggaggac uaaaaguaac 1080

aguuccagac agggguucga gaugauuugg gauccuaaug gguggacaga gacugauagu 1140

aauuucuuua cgaaacaaga uguaguggca guaaccgauu ggucagggua cagcggaagu 1200

uucguucaac auccugagcu aacagggcug gacuguauga ggccuugcuu cuggguugaa 1260

uuaaucaggg gacgaccuaa agaaaauaca aucuggacca gugggagcag cauuucuuuu 1320

uguggugugа auagugauac uguagauugg ucuuggccag acggugccga guugccauuc 1380

accauugaca aguag 1395

<210> 49326
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49581

<400> 49326
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagga uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuaguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 49327
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49592

<400> 49327
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau cugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag ugugguagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagga uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuaguuggcg acacacccag aaacgacgac agaucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaggucau aguugacagc 1200

aauaauuggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg caacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 49328
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49603

<400> 49328
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ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 49329
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49625

<400> 49329
augaauccaa aucaaaagac aauaacaauu ggcucugucu cucucaccau ugaaacagua 60

ugcuuccuca ugcagauugc cauccuggca acuacuguga cauugcauuu uaagcaacau 120

gagugcgacu cccccgcgag caaccaagua augccaugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau uugccccgaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagaggaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaaugg cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaaacaag ugugugugagc augguccagc 540

ucaaguuguc acgauggaaa agcaugguug cauguuugug ucacugggga ugauagaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcauc aggaagagcc gauacuagaa uacuauucau uaaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auauagagga guguuccugu 840

uacccucgau auccugacgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccguuauag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag gaacgacgac agcucuagca auagcaauug cagggauccu 1020

aacaaugaga gagggaaucc aggagugaaa ggcugggccu uugacaaugg agaugaugua 1080

uggaugggaa gaacaaucag caaagauuca cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg caggucaaua gacaggucau aguugacaac 1200

aauaauuggu cugguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg ccacaggaga cuagaguaug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacuuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 49330
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49647

<400> 49330
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggggcaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau aucuuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauaguag auauaaacau aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49331
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV49669

<400> 49331

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agucuaauau ugcaaauagg aaauauuguu ucaauaugga ucagccacuc aauccaaacg 120

ggaagucaaa acuacacugg aauaugcaac caaagaauca uuaccuauga aaauagcacc 180

uggguaaauc aaacauaugu uaauaucaac aacacuaaug uuguugcugg acaggacaca 240

acuucaguga cauuagccgg caauucaucu cuuuguccua ucagugggug ggcuauauac 300

agcaaagaca acagcauaag aauugguucc aaaggagaug uuuuugucau aagagaaccu 360

uuuauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaagc auucaaaugg aaccguuaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccuauag gugaagcucc gucucccuac aauucaagau uugaaucagu ugcuugguca 540

gcaagcgcau gucaugaugg caugggcugg cuaacaaucg gaauuucugg uccagaugau 600

ggagcagugg cuguacuaaa auacaacggu auaauaacug aaaccauaaa aaguuggagg 660

aagcgaauau uaagaacaca agagucugaa ugugucugug uaaacgguuc auguuuuacc 720

auaaugaccg auggcccgaa uaaugggccu gccucguaca aaaucuucaa aaucgagaag 780

gggaagauua cuaaaucaau agaguuggau gcacccaauu cucauuacga ggaauguucc 840

uguuacccag acgccggcac agugaugugu gugugcagag acaauuggca ugguucgaau 900

cgacccuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggu 960

guuuuuggug acaauccgcg ucccaaagau ggaaaaggca gcugugguсc aguaacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacagguaug guaauggugu uuggauagga 1080

aggacuaaaa guaacagcuc cagaagagga uuugagauga uuugggaccc uaauggaugg 1140

acagauaccg auaguaaauu cuuagugaaa caggauguag uggcaaugac ugauugguca 1200

ggguacagcg gaagcuucgu ucaacauccu gaacuaacag gauuggauug uaugaggccu 1260

ugcuucuggg uugaauugau cagaggacga ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcgugaau ggugauacug caaauugguc uuggccagac 1380

ggugccgagu ugccauucac cauugacaag uag 1413

<210> 49332

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV49679

<400> 49332
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agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccgaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca uaacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49333
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV53442

<400> 49333
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49334
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV53452

<400> 49334
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49335
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV53462

<400> 49335
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49336
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV53472

<400> 49336
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49337
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV53482

<400> 49337
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugcgacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49338
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV53492

<400> 49338
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaggcaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugagacag acaauaacuu cuuaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49339
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV53502

<400> 49339
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaggcaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cuuaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49340
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV53891

<400> 49340
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaaaauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugugaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49341
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV53901

<400> 49341

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagca ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49342
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV53911

<400> 49342
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49343
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67088

<400> 49343
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuucu uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49344
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67168

<400> 49344
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

gggaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACV67169

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49346
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67171

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

aggacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49347
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67172

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49348
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67173

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augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49349
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV67174

<400> 49349
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49350
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67175

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggaucaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49351
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67176

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49352
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67177

<400> 49352
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49353
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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<400> 49353
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49354
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67179

<400> 49354
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49355
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67180

<400> 49355
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagccagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49356
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67181

<400> 49356
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuuaucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauaa ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49357
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67182

<400> 49357
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49358
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67183

<400> 49358
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaauga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49359
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67184

<400> 49359
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49360
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67186

<400> 49360
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcaguag cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49361
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67187

<400> 49361
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49362
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67188

<400> 49362
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49363
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67189

<400> 49363
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49364
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACV67190

<400> 49364
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49365
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67191

<400> 49365
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49366
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67192

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV67193

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49368
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67194

<400> 49368
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49369
<211> 1410
<212> RNA
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<220>
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augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49370
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67196

<400> 49370
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49371
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67197

<400> 49371
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49372
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67199

<400> 49372
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49373
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67200

<400> 49373
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aacggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49374
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACV67201

<400> 49374
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49375
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67202

<400> 49375
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49376
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67203

<400> 49376
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49377
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67204

<400> 49377
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49378
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67205

<400> 49378
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49379
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67206

<400> 49379
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49380
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67207

<400> 49380
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49381
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67208

<400> 49381
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgcac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49382
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67210

<400> 49382
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49383
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV67211

<400> 49383
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49384
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70076

<400> 49384
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49385
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70086

<400> 49385

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49386

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70096

<400> 49386
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uuacugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49387
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70106

<400> 49387
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49388
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70116

<400> 49388
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49389
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70126

<400> 49389
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49390
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70157

<400> 49390
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49391
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70167

<400> 49391
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49392
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70177

<400> 49392
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49393
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70187

<400> 49393
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49394
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70197

<400> 49394
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49395
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70207

<400> 49395

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49396
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70217

<400> 49396

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu caacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccacuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49397
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70227

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49398
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70237

<400> 49398
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49399
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70247

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49400
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70257

<400> 49400
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49401
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70267

<400> 49401
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49402
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70277

<400> 49402
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49403
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70287

<400> 49403
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49404
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70297

<400> 49404
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49405
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70307

<400> 49405
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49406
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70317

<400> 49406
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49407
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70327

<400> 49407
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49408
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70337

<400> 49408
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49409
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70347

<400> 49409
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49410
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70357

<400> 49410
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49411
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70367

<400> 49411
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49412
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70377

<400> 49412
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49413
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70387

<400> 49413
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49414
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70397

<400> 49414
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49415
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70407

<400> 49415
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49416
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70417

<400> 49416
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuuuggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49417
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70427

<400> 49417
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49418
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70437

<400> 49418
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49419
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70447

<400> 49419
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49420
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70457

<400> 49420
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49421
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70467

<400> 49421
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49422
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70477

<400> 49422
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49423
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70487

<400> 49423
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49424
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70497

<400> 49424
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49425
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70507

<400> 49425
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49426
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70517

<400> 49426
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49427
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70527

<400> 49427
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49428
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACV70547

<400> 49428
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49429
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70557

<400> 49429
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49430
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70567

<400> 49430
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49431
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70577

<400> 49431
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49432
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70587

<400> 49432
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49433
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70597

<400> 49433
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49434
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70607

<400> 49434
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49435
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70617

<400> 49435
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49436
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70647

<400> 49436
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49437
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70657

<400> 49437
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49438
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70667

<400> 49438
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49439
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70677

<400> 49439

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49440

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70687

<400> 49440
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49441
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70697

<400> 49441
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49442
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70707

<400> 49442
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggu auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49443
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70717

<400> 49443
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49444
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70727

<400> 49444
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49445
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70737

<400> 49445
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49446
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70757

<400> 49446
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49447
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70767

<400> 49447
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49448
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70777

<400> 49448
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaauaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49449
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70787

<400> 49449

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagug ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49450
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70797

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49451
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70807

<400> 49451
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49452
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70817

<400> 49452
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49453
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70827

<400> 49453
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49454
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70837

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49455
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70847

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucaugucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggagcuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49456
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70867

<400> 49456
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag gaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49457
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70877

<400> 49457
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49458
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70887

<400> 49458
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg uaucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49459
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70897

<400> 49459
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49460
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV70907

<400> 49460
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49461
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70917

<400> 49461
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49462
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70927

<400> 49462
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49463
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70937

<400> 49463
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49464
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70947

<400> 49464
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49465
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACV70957

<400> 49465
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49466
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70967

<400> 49466
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49467
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70977

<400> 49467
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

agcaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49468
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV70987

<400> 49468
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49469
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV71007

<400> 49469
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49470
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV82218

<400> 49470
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49471
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV82219

<400> 49471
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauccugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggauggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49472
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV82220

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ugcuucuuca ugcaacuugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacgcua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

uacaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagagaaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49473
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV82221

<400> 49473
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagaaggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49474
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV88402

<400> 49474
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49475
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACV88412

<400> 49475
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49476
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV88422

<400> 49476
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49477
<211> 1365
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV89505

<400> 49477
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agccuaauau ugcaaauagg gaauauaauc ucaauaugga uuagccauuc aauucaaacu 120

ggaagucaaa accauacugg aauaugcaac caaaacauca uuaccuauaa aaauagcacc 180

uggguaaagg acacaacuuc agugauauua accggcaauu caucucuuug ucccauccgu 240

gggugggcua uauacagcaa agacaauagc auaagaauug guuccaaagg agacguuuuu 300

gucauaagag agcccuuuau uucauguucu cacuuggaau gcaggaccuu uuuucugacc 360

caaggugccu uacugaauga caagcauuca agugggacug uuaaggacag aagcccuuau 420

agggccuuaa ugagcugccc ugucggugaa gcuccguccc cguacaauuc aagauuugaa 480

ucgguugcuu ggucagcaag ugcaugucau gauggcaugg gcuggcuaac aaucggaauu 540

ucagguccag auaauggagc aguggcugua uuaaaauaca acggcauaau aacugaaacc 600

auaaaaaguu ggaggaagaa aauauugagg acacaagagu cugaaugugc cuguguaaau 660

gguucauguu uuacuauaau gacugauggc ccgagugaug ggcuggccuc guacaaaauu 720

uucaagaucg aaaaggggaa gguuacuaaa ucaauagagu ugaaugcacc uaauucucac 780

uaugaggaau guuccuguua cccugauacc ggcaaaguga ugugugugug cagagacaau 840

uggcaugguu cgaaccggcc augggugucu uucgaucaaa accuggauua ucaaauagga 900

uacaucugca gugggguuuu cggugacaac ccgcgucccg aagauggaac aggcagcugu 960

gguccagugu auguugaugg agcaaacgga guaaagggau uuucauauag guaugguaau 1020

gguguuugga uaggaaggac caaaagucac aguuccagac augggguuga gaugauuugg 1080

gauccuaaug gauggacaga gacugauagu aaguucucug ugaggcaaga uguuguggca 1140

augacugauu ggucagggua uagcggaagu uucguucaac auccugagcu gacagggcua 1200

gacuguauga ggccgugcuu cuggguugaa uuaaucaggg gacgaccuaa ggagggaaca 1260

aucuggacua gugcgagcag cauuucuuuu uguggcguga auagugauac uguagauugg 1320

ucuuggccag acggugcuga guugccauuc agcauugaca aguag 1365

<210> 49478
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV91673

<400> 49478
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49479
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACV91681

<400> 49479
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49480
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31593

<400> 49480
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug cugcugugug aaccagcaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49481
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31901

<400> 49481
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49482
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31902

<400> 49482
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49483
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACX31905

<400> 49483
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg uccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49484
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31906

<400> 49484
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49485
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31907

<400> 49485
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49486
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31908

<400> 49486
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49487
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31909

<400> 49487
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49488
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31911

<400> 49488
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49489
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31912

<400> 49489
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49490
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31913

<400> 49490
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

accgggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49491
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31914

<400> 49491
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49492
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31915

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49493
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACX31916

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA

<213> Artificial Sequence

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaca gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49495
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49496
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<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<211> 1410
<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49501
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACX31925

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

uuaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaucau ugacaaguaa 1410

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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31926

<400> 49502
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49503
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31927

<400> 49503
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49504
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACX31928

<400> 49504
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagaaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacggu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49505
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31929

<400> 49505
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49506
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31930

<400> 49506
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49507
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31931

<400> 49507
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49508
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX31932

<400> 49508
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49509
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX35250

<400> 49509
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49510
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX35260

<400> 49510
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49511
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX35270

<400> 49511
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49512
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX35280

<400> 49512
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgacaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49513
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX35290

<400> 49513
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49514
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX35300

<400> 49514
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49515
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACX35310

<400> 49515

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauugg aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49516

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX35320

<400> 49516
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49517
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX35330

<400> 49517
augaauccaa accaaaagau aauaaccauu gguucggucu guauaacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49518
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX48479

<400> 49518
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49519
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX48481

<400> 49519
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49520
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACX55836

<400> 49520
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49521
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX56269

<400> 49521
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggagugaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49522
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX56270

<400> 49522
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacucuguga guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49523
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX56271

<400> 49523
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaac caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacc uugcugcugg acagucagug 240

gguuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49524
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX83579

<400> 49524
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

agcaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49525
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACX85425

<400> 49525

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca ugguucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49526
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACX85426

<400> 49526
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca ugguucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49527
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY02998

<400> 49527
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu agaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49528
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY03005

<400> 49528
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu agaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49529
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY03008

<400> 49529
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49530
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY03011

<400> 49530
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49531
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY03012

<400> 49531
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49532
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY03016

<400> 49532
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucu aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49533
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY26194

<400> 49533
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagauaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49534
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY26204

<400> 49534
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcgga 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49535
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY30123

<400> 49535
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49536
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY30124

<400> 49536
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49537
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACY30125

<400> 49537
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49538
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY30127

<400> 49538
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49539
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY30128

<400> 49539
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49540
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY46105

<400> 49540
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49541
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY46165

<400> 49541
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49542
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY46175

<400> 49542
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49543
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY46345

<400> 49543
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49544
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY46385

<400> 49544
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu caacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49545
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY46485

<400> 49545
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49546
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77536

<400> 49546
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49547
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77546

<400> 49547
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49548
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77565

<400> 49548
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49549
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77575

<400> 49549
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gcccccaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuagugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49550
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77585

<400> 49550
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49551
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACY77595

<400> 49551
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49552
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77605

<400> 49552
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49553
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77625

<400> 49553
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guugguccug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49554
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77655

<400> 49554
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucguuu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49555
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77665

<400> 49555
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49556
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77675

<400> 49556
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49557
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77685

<400> 49557
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49558
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACY77695

<400> 49558
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49559
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77705

<400> 49559
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49560
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77725

<400> 49560
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccauggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuagauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49561
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77735

<400> 49561
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccauggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuagauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49562
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77745

<400> 49562
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49563
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77755

<400> 49563
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49564
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77775

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcuuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

aguagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49565
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77785

<400> 49565
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49566
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACY77795

<400> 49566
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucugug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcuuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

aguagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49567
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77825

<400> 49567
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccgcga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49568
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77835

<400> 49568
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccgcga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49569
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACY77845

<400> 49569

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49570

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77865

<400> 49570
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49571
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77870

<400> 49571
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaac caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacc uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49572
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77877

<400> 49572
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49573
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77887

<400> 49573
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49574
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACY77907

<400> 49574
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49575
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77917

<400> 49575
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49576
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77927

<400> 49576
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccaaacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49577
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77937

<400> 49577
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggccag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49578
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77947

<400> 49578
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49579
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACY77967

<400> 49579

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49580
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACY77977

<400> 49580
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49581
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77987

<400> 49581
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49582
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY77997

<400> 49582
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga cauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49583
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACY78017

<400> 49583
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacc 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49584
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ01955

<400> 49584
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccaggcaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49585
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ05053

<400> 49585
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49586
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05064

<400> 49586
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49587
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05074

<400> 49587
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49588
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05084

<400> 49588
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49589
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05094

<400> 49589
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49590
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ05104

<400> 49590
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49591
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ05114

<400> 49591
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49592
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05124

<400> 49592
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacuugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49593
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05144

<400> 49593
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49594
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05154

<400> 49594
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49595
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05164

<400> 49595
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49596
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05175

<400> 49596
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49597
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05197

<400> 49597
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc gauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49598
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05208

<400> 49598
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugauagugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49599
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05219

<400> 49599
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguggca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac gagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca augguacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aauaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49600
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05230

<400> 49600
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49601
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05241

<400> 49601
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgauaag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49602
<211> 1413
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05296

<400> 49602
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcaucag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauuaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugacug auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaaa 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaga uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc aguggcuguu 1020

gauggagcaa auggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 49603
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05307

<400> 49603
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49604
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05318

<400> 49604
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaaccgc cauccugaua acuacuguaa cauugcauuu caagcaaugu 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacgcua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49605
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05329

<400> 49605
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49606
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05340

<400> 49606
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uagaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49607
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05362

<400> 49607
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49608
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05373

<400> 49608
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49609
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05395

<400> 49609
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac acaaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49610
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05406

<400> 49610
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguuaau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49611
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05450

<400> 49611
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agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcguaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49612
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACZ05461

<400> 49612
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49613
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05472

<400> 49613
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49614
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05483

<400> 49614
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccguag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49615
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05494

<400> 49615
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49616
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05516

<400> 49616
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ugcuucuuca ugcaaaccgc cauccugaua acuacuguga cauugcauuu caagcaaugu 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacgcua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49617
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05527

<400> 49617
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49618
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05538

<400> 49618
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcaa auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49619
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05593

<400> 49619
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucauuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggaau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 49620
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05604

<400> 49620
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua uccguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuucuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49621
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05953

<400> 49621
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49622
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ05964

<400> 49622
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49623
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ05997

<400> 49623

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49624

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ06008

<400> 49624
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucuggggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49625
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ06019

<400> 49625
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 49626
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16015

<400> 49626
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuacagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa uguguuugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguuu cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49627
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16025

<400> 49627
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccauaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49628
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16035

<400> 49628
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaaggauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gucaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau uugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49629
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16043

<400> 49629
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaauauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49630
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16053

<400> 49630
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaacaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49631
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16073

<400> 49631
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaauauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg uuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaaggccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49632
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16083

<400> 49632
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau cggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuag acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu gggaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucugga uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49633
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16093

<400> 49633

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49634
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16103

<400> 49634
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49635
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16113

<400> 49635
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49636
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16123

<400> 49636
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cuccccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49637
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16133

<400> 49637
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

auaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49638
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16143

<400> 49638
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc auuaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49639
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16153

<400> 49639
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49640
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16163

<400> 49640
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49641
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16173

<400> 49641
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49642
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACZ16193

<400> 49642
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49643
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16203

<400> 49643
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49644
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16213

<400> 49644
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49645
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16223

<400> 49645
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaauga aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49646
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16233

<400> 49646
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49647
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16243

<400> 49647
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49648
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16253

<400> 49648
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg ugugaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaacau ugacaaguaa 1410

<210> 49649
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16263

<400> 49649
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49650
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16283

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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neuraminidase__InfluenzaA__ACZ16293

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49652
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<212> RNA
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neuraminidase__InfluenzaA__ACZ16303

<400> 49652
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49653
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16313

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49654
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16323

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49655
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16333

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49656
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16343

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49657
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACZ16353

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49658
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16363

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49659
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16373

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49660
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16383

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49661
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16393

<400> 49661
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49662
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16403

<400> 49662
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acggggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49663
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16423

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49664
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16433

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49665
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16443

<400> 49665
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49666
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACZ16453

<400> 49666
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49667
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACZ16463

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49668
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16483

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49669
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACZ16493

<400> 49669
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

agcaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggagcuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49670
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16503

<400> 49670
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaauggau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49671
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16513

<400> 49671
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49672
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16523

<400> 49672
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49673
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16533

<400> 49673
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49674
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16543

<400> 49674
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49675
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16553

<400> 49675
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49676
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16586

<400> 49676
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49677
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16596

<400> 49677

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49678

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16606

<400> 49678
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49679
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACZ16633

<400> 49679
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49680
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16643

<400> 49680
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaag guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49681
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16653

<400> 49681
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49682
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16663

<400> 49682
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49683
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16673

<400> 49683
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49684
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16683

<400> 49684
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49685
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16693

<400> 49685
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49686
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16703

<400> 49686
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49687
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16713

<400> 49687

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49688
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ16723

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49689
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49690
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49691
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49692
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16763

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggagcuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49693
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16773

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49694
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<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg ccccaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg ugugaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49695
<211> 1410
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neuraminidase__InfluenzaA__ACZ16793

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49696
<211> 1410
<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

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<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACZ16813

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49698
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16823

<400> 49698
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49699
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16833

<400> 49699
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucaacaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49700
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16843

<400> 49700
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49701
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16853

<400> 49701
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaauggau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49702
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16863

<400> 49702
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaacu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg guaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49703
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16873

<400> 49703
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49704
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16883

<400> 49704
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49705
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16893

<400> 49705
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49706
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16903

<400> 49706
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49707
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACZ16913

<400> 49707
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49708
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16923

<400> 49708
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49709
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16933

<400> 49709
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49710
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16943

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49711
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16953

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49712
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16963

<400> 49712
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49713
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16973

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49714
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16983

<400> 49714
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucaaauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaguaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49715
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ16993

<400> 49715
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49716
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17003

<400> 49716
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49717
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17023

<400> 49717
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa guauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uaucagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49718
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17043

<400> 49718
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49719
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17053

<400> 49719
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cucacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49720
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACZ17063

<400> 49720
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggggaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuaucuac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guugguccug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49721
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17073

<400> 49721
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49722
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17083

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49723
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17093

<400> 49723
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ugaaugcaga accuucuucu ugacucaagg ggcccugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49724
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17113

<400> 49724
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aacgacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49725
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17123

<400> 49725
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49726
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17133

<400> 49726
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49727
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17163

<400> 49727
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccggaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49728
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17173

<400> 49728
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccggaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49729
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17183

<400> 49729
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugccccg uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccggaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49730
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17193

<400> 49730
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugccccg uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccggaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49731
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ17203

<400> 49731

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugccccg uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccggaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49732

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17213

<400> 49732
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguacc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49733
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17223

<400> 49733
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49734
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17233

<400> 49734
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49735
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACZ17243

<400> 49735
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49736
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17263

<400> 49736
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49737
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17273

<400> 49737
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucggac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg cuucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguauugucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49738
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17283

<400> 49738
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49739
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17293

<400> 49739
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49740
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17303

<400> 49740
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49741
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ17313

<400> 49741

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuggugggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49742
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ17401

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49743
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17411

<400> 49743
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49744
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17421

<400> 49744
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49745
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17431

<400> 49745
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49746
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17441

<400> 49746
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49747
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17451

<400> 49747
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gagcuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49748
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17461

<400> 49748
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49749
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ17471

<400> 49749
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49750
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17481

<400> 49750
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gagaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49751
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ17491

<400> 49751
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49752
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ27803

<400> 49752
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuuaucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gcuccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49753
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ27813

<400> 49753
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucgggg acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49754
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ27823

<400> 49754
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49755
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ27833

<400> 49755
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49756
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ45022

<400> 49756
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49757
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ53958

<400> 49757
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauccg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcuc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auguccugau 1380

gggucugucc ucaaucucau gccuauauaa 1410

<210> 49758
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ53969

<400> 49758
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauccuca ggacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

gaaaucguuc auacuagccc auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

gggucugucc ucaaucucau gccuauauaa 1410

<210> 49759
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ53980

<400> 49759
augaauccaa aucaaaauaa auuaccgauu ggcucuguuu cucucaccau ugccacaaua 60

ugcuuccuua ugcaaauugc aauccugaaa acuacuguaa cauugcauuu caagcaauau 120

gaaugcaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacuuaacaa agauugugua ucugaccaac accaccauaa aaaaggaaau augccccaaa 240

caaccaaaau acagaaauug gucaaagccg aaauguaaaa uuacagaauu ggcaccuuuu 300

ucuaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uacgugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug cuuggauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

ggaggcuggu ccaaaccuaa cuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

gggucugucc ucaaucucau gccuauauaa 1410

<210> 49760
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ56082

<400> 49760
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49761
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ57183

<400> 49761
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag gauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49762
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ81542

<400> 49762
augaacccaa aucaaaaggu uauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg cccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagaaggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49763
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ81543

<400> 49763
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuacagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

gagcaaauau uaagaacaca agagucugaa uguguuugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa caggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49764
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ81546

<400> 49764
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauc ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacau gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49765
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ81547

<400> 49765
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacac aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaaa 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 49766
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ81634

<400> 49766
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49767
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ81644

<400> 49767
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49768
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ81653

<400> 49768
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49769
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95840

<400> 49769
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49770
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95850

<400> 49770
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauug uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49771
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95860

<400> 49771
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49772
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ACZ95870

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuucuguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49773
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95880

<400> 49773
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49774
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACZ95890

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auuccaguga aaucacaugu gugugcaggg acaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49775
<211> 1410

<212> RNA
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neuraminidase__InfluenzaA__ACZ95900

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49776
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga acuuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49777
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49778
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95930

<400> 49778
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuucuguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

auaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49779
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ACZ95940

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49780
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95950

<400> 49780
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaacugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49781
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95960

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49782
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95970

<400> 49782
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaacugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49783
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95980

<400> 49783
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49784
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ95990

<400> 49784
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucc 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49785
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96000

<400> 49785

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49786

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96010

<400> 49786
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49787
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96020

<400> 49787
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aacuuaauau uacaaauugg aaacauaauc uuaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca ucaccuacga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg gccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuauugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49788
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96050

<400> 49788
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49789
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96060

<400> 49789
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49790
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96072

<400> 49790
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49791
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96082

<400> 49791
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaauaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucc 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49792
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96092

<400> 49792
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49793
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96102

<400> 49793
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaacauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccaaaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49794
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96112

<400> 49794
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49795
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96122

<400> 49795

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga agcaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggccauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggaaag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uauaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49796
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96132

<400> 49796
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49797
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96142

<400> 49797
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49798
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96152

<400> 49798
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aacuuaauau uacaaauugg aaacauaaua ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49799
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96162

<400> 49799
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49800
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<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96172

<400> 49800
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49801
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96182

<400> 49801
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacagac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49802
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96192

<400> 49802
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cucuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49803
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96232

<400> 49803
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagugga 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaugacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49804
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96242

<400> 49804
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga gcacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49805
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96252

<400> 49805
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49806
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96292

<400> 49806
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49807
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96302

<400> 49807
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucggu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49808
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96312

<400> 49808
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49809
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96322

<400> 49809
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49810
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96332

<400> 49810
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49811
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96352

<400> 49811
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caacuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaacugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49812
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96362

<400> 49812
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49813
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96375

<400> 49813
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49814
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96385

<400> 49814
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49815
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96395

<400> 49815
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca ucaccuacga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg gccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuauugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49816
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96408

<400> 49816
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49817
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96428

<400> 49817
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49818
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96438

<400> 49818
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49819
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96448

<400> 49819
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49820
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96479

<400> 49820
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49821
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96489

<400> 49821
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaacugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49822
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96499

<400> 49822
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aauaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49823
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96509

<400> 49823
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggauaaacc aaacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49824
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96519

<400> 49824
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49825
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96529

<400> 49825
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc aucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49826
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96552

<400> 49826
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aagucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49827
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96562

<400> 49827
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49828
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACZ96572

<400> 49828
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49829
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96582

<400> 49829
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49830
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96592

<400> 49830
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag uccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaauuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49831
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96602

<400> 49831
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49832
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96612

<400> 49832
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcgucg uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gauaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49833
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96622

<400> 49833
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49834
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96632

<400> 49834
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49835
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96642

<400> 49835
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49836
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96652

<400> 49836
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49837
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96662

<400> 49837
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49838
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96672

<400> 49838
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49839
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96682

<400> 49839

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49840

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96692

<400> 49840
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49841
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96702

<400> 49841
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49842
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96712

<400> 49842
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49843
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96722

<400> 49843
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49844
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96732

<400> 49844
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49845
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96742

<400> 49845
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49846
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96752

<400> 49846
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaaccg 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg agccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac cuuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49847
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96762

<400> 49847
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49848
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96772

<400> 49848
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49849
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96782

<400> 49849

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaaccg 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg agccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49850
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96792

<400> 49850
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaaccg 360

uucauaucau gcucccccuu ggaaugcaga accuuuuucu ugacucaagg agccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49851
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96802

<400> 49851
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49852
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96812

<400> 49852
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49853
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96822

<400> 49853
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gagcuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg gcuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49854
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96842

<400> 49854
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagagaaccg 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg agccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugauu gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49855
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96852

<400> 49855
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49856
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96862

<400> 49856
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49857
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96872

<400> 49857
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugcgcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49858
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96882

<400> 49858
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gagcuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg gcuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49859
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96892

<400> 49859
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugcgcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49860
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96902

<400> 49860
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugcgcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49861
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ96912

<400> 49861
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagggggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49862
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96922

<400> 49862
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau caggggggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49863
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96932

<400> 49863
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaauu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49864
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96942

<400> 49864
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaauu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49865
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ96952

<400> 49865
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49866
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ97024

<400> 49866
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49867
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ97336

<400> 49867
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaauu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49868
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ97346

<400> 49868
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugcgcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49869
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ97366

<400> 49869
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49870
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ97376

<400> 49870
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49871
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ97386

<400> 49871
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49872
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ97396

<400> 49872
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaauu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49873
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98171

<400> 49873
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49874
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98181

<400> 49874
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49875
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98191

<400> 49875
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuaguuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu uaacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg guaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49876
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98201

<400> 49876
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49877
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98211

<400> 49877
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49878
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98221

<400> 49878
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggccag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49879
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98231

<400> 49879
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg gaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49880
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98241

<400> 49880
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49881
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98251

<400> 49881
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccggaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49882
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ACZ98261

<400> 49882
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaacgg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49883
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98271

<400> 49883
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49884
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98281

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49885
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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<400> 49885
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49886
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98301

<400> 49886
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aacuuaauau uacaaauugg aaacauaauu ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacgggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49887
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98321

<400> 49887
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49888
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98331

<400> 49888
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49889
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98341

<400> 49889
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccaccc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu caacaucagc aacaccaacc uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug ucaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49890
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98351

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49891
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98361

<400> 49891
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49892
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98371

<400> 49892
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49893
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ98381

<400> 49893

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49894

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98391

<400> 49894
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49895
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98401

<400> 49895
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49896
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98411

<400> 49896
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49897
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98421

<400> 49897
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49898
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98431

<400> 49898
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49899
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98441

<400> 49899
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49900
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98451

<400> 49900
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49901
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98461

<400> 49901
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49902
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98674

<400> 49902
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gagcuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg gcuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49903
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ACZ98684

<400> 49903

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaauu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49904
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ACZ98694

<400> 49904
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagugga 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaugacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49905
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA60801

<400> 49905
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaccug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49906
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA69294

<400> 49906
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49907
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADA69304

<400> 49907
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49908
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA69314

<400> 49908
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49909
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA69324

<400> 49909
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49910
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA69334

<400> 49910
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49911
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA69451

<400> 49911
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uaucagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49912
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA69453

<400> 49912
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcuccccuuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49913
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71153

<400> 49913
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggaucau agcauuguuu cccguuaugu guguucagga 960

cuuguuggag acccacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 49914
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71155

<400> 49914
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cgggauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaauu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaag uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauaaggcc gccucuuaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg ggaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 49915
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71157

<400> 49915
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau uugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 49916
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71159

<400> 49916
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaauu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaag uuguugcugg agagggcaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauaaac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcacuauua 420

aaugacaaac auucaaauag gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg ggaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 49917
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71161

<400> 49917
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucgucc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaacuuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 49918
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71165

<400> 49918
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuccaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 49919
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71167

<400> 49919
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu ggcggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gguaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucgugg auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuugaauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 49920
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71169

<400> 49920
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauucaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuccaguga cauuggucgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau gcucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg cauaggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaagga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua uaaacggguc auguuucacc 720

auaaugaccg augguccgag ugauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau ggaguugaau gcacccaauu uucauuauga ggaauguucu 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcugcaaccc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagaau uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau ggugauauug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49921
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71171

<400> 49921
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaaggacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 49922
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71173

<400> 49922
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gcuaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuugaauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaauugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 49923
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71175

<400> 49923
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaauu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaag uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauaaac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaaa 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg ggaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 49924
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71177

<400> 49924
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau uugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 49925
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA71193

<400> 49925
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49926
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA79589

<400> 49926
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aagucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guauaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49927
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA79599

<400> 49927
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49928
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA79609

<400> 49928
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccauggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49929
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA79619

<400> 49929
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

gccuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49930
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA81211

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49931
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83035

<400> 49931
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcagu accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49932
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83037

<400> 49932
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aacuuaauau uacaaauugg aaacauaauc ucgauaugga uuagccacuc aauucaacuu 120

gggaaucaag aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49933
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83588

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49934
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83592

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg uccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49935
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83596

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49936
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADA83600

<400> 49936
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucguaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49937
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83604

<400> 49937
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49938
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83608

<400> 49938
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucaaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49939
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83612

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugggcag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49940
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83616

<400> 49940
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugggcag gccucguaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucaaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49941
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83624

<400> 49941
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucaaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49942
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83630

<400> 49942
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49943
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83634

<400> 49943
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca ugguucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49944
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83638

<400> 49944
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugggcag gccucguaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49945
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83642

<400> 49945
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49946
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83649

<400> 49946
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49947
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADA83653

<400> 49947

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugggcag gccucguaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49948

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83657

<400> 49948
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucuguccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugggcag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49949
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83661

<400> 49949
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaaa acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49950
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83669

<400> 49950
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49951
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83673

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49952
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83677

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca ugguucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49953
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83681

<400> 49953
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca ugguucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49954
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA83685

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcugg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg uccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucaaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49955
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADA86069

<400> 49955
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49956
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB27973

<400> 49956
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49957
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB27983

<400> 49957

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49958
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADB66693

<400> 49958
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuauccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49959
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB66695

<400> 49959
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49960
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB66696

<400> 49960
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaauuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49961
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB66697

<400> 49961
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acagcauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugaacaa gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaca ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49962
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB81401

<400> 49962
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49963
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB81421

<400> 49963
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49964
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB81431

<400> 49964
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacgga auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49965
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB81441

<400> 49965
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag gauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49966
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB81451

<400> 49966
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa uguguaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49967
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB81461

<400> 49967
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49968
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB82942

<400> 49968
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49969
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADB82945

<400> 49969
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49970
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89132

<400> 49970
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49971
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89142

<400> 49971
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49972
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89224

<400> 49972
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49973
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89234

<400> 49973
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49974
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89244

<400> 49974
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuuuag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49975
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89264

<400> 49975
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49976
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89274

<400> 49976
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggggaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu ugcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuuuuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49977
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89284

<400> 49977
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49978
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89294

<400> 49978
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu caacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49979
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89304

<400> 49979
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa gggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49980
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89314

<400> 49980
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaaa 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49981
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89324

<400> 49981
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49982
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89334

<400> 49982
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49983
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89344

<400> 49983
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49984
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89364

<400> 49984
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49985
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89374

<400> 49985
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggu auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49986
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADB89384

<400> 49986
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49987
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89394

<400> 49987
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49988
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89404

<400> 49988
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaguauau ugagaacaca agaaucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49989
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89414

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49990
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADB89424

<400> 49990
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49991
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89434

<400> 49991
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49992
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89444

<400> 49992
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49993
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89454

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cugugcuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaaa ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcgga 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49994
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89464

<400> 49994
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49995
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89484

<400> 49995
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49996
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89494

<400> 49996
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacgggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49997
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89504

<400> 49997
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcuu 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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gcugaguugc cauuuaccau cgacaaguaa 1410

<210> 49998
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89514

<400> 49998
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 49999
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89524

<400> 49999
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauucaccau ugacaaguaa 1410

<210> 50000
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89544

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccucuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50001
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89564

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50002

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<213> Artificial Sequence

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<400> 50002
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50003
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89594

<400> 50003
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50004
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89604

<400> 50004
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50005
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89614

<400> 50005
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca gcuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaaugguau uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50006
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADB89624

<400> 50006
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50007
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89634

<400> 50007
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50008
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89644

<400> 50008
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50009
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89664

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcugaauug uauaagaccc 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50010
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89674

<400> 50010
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

gggaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50011
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89684

<400> 50011

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguaa aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50012
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADB89694

<400> 50012
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cacaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50013
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89704

<400> 50013
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50014
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89714

<400> 50014
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50015
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB89724

<400> 50015
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 50016
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADB89735

<400> 50016
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 50017
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB90357

<400> 50017
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50018
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB90358

<400> 50018
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcaugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50019
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB90359

<400> 50019
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aacuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg gccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50020
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB90363

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50021
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB90373

<400> 50021
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50022
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB98137

<400> 50022
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50023
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADB98138

<400> 50023
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50024
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB98139

<400> 50024
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50025
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB98140

<400> 50025
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50026
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADB98141

<400> 50026
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50027
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32391

<400> 50027
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50028
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32392

<400> 50028
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50029
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32393

<400> 50029
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50030
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32394

<400> 50030
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50031
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32395

<400> 50031
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50032
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32396

<400> 50032
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50033
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32397

<400> 50033
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50034
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32398

<400> 50034
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50035
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32399

<400> 50035
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuuguaau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggccgugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50036
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADC32400

<400> 50036
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50037
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADC32401

<400> 50037
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg accagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50038
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32404

<400> 50038
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50039
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC32407

<400> 50039
augaauccaa agcaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucauuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga ucugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50040
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC34942

<400> 50040
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuaaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagagagug gucaaagccg caauguaaua uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cauaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccauu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggagagg cuccaauagg 900

cccauaguag auauaaacau gaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug cuugaauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguua cgcucaggau augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 50041
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC39000

<400> 50041
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacaaugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50042
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC39010

<400> 50042
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50043
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45606

<400> 50043
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaauacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauug 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaauug gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuuuacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50044
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADC45628

<400> 50044
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauggg aaauauuauu ucaauauggg cuagucacuc aauucaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuccaguga cauuggucgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg cauaggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaagga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau ggaguugaau gcacccaauu uucauuauga ggaauguucu 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagaau uagaaagggg uuugaaauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau ggugauauug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50045
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45639

<400> 50045
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauucaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuccaguga cauuggucgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg cauaggcugg uuaacaaucg gaguuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaagga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau ggaguugaau gcacccaauu uucauuauga ggaauguucu 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagaau uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau ggugauauug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50046
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45650

<400> 50046
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50047
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45661

<400> 50047
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauac uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50048
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45683

<400> 50048
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauucaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuccaguga cauuggucgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg cauaggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaagga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaaugggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau ggaguugaau gcacccaauu uucauuauga ggaauguucu 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg uguccuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagaau uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau ggugauauug caaauugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50049
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45705

<400> 50049
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag aacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugacug auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50050
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45716

<400> 50050
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauucaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuccaguga cauuggucgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaaa accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg cauaggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaagga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg augguccgag uaauggggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau ggaguugaau gcacccaauu uucauuauga ggaauguucu 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau agagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaga aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagaau uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauauug uagcaauaac uaauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau ggugauauug caaauugguc cuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50051
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45738

<400> 50051
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauac uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugacacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50052
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45760

<400> 50052
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccgcaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauugggcug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50053
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45771

<400> 50053
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucaaugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50054
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45782

<400> 50054
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaauag gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50055
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADC45804

<400> 50055

augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagauua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50056

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45815

<400> 50056
augaauccaa aucaaaagau aauaaccaua ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg cccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccguaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccgg acacuggcau ggugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50057
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45837

<400> 50057
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50058
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC45848

<400> 50058
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50059
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADC53559

<400> 50059
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu agaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50060
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14088

<400> 50060
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50061
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14090

<400> 50061
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50062
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14094

<400> 50062
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50063
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14096

<400> 50063
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50064
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14098

<400> 50064
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50065
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14100

<400> 50065

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50066
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD14102

<400> 50066
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50067
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14104

<400> 50067
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50068
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14106

<400> 50068
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50069
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14110

<400> 50069
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50070
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14112

<400> 50070
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggaguc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50071
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14114

<400> 50071
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggggaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50072
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14116

<400> 50072
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50073
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14118

<400> 50073
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50074
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14120

<400> 50074
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50075
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14122

<400> 50075
augaauccaa accaaaagau aauaaccauu gguucggucu guaugaccau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50076
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14124

<400> 50076
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50077
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD14126

<400> 50077
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50078
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14128

<400> 50078
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50079
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14130

<400> 50079
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50080
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14132

<400> 50080
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcc 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50081
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14134

<400> 50081
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50082
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14136

<400> 50082
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50083
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14138

<400> 50083
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50084
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14142

<400> 50084
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacgg acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50085
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14144

<400> 50085
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50086
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14146

<400> 50086
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50087
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14148

<400> 50087
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50088
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14150

<400> 50088
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucgu gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuauuaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggagugaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acgauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50089
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14152

<400> 50089
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaauauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50090
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14154

<400> 50090
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aucaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50091
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14156

<400> 50091
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50092
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14158

<400> 50092
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50093
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14164

<400> 50093
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50094
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14174

<400> 50094
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50095
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14184

<400> 50095
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50096
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14194

<400> 50096
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50097
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD14204

<400> 50097
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50098
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADD21449

<400> 50098
augaauccaa accaaagaau aauaacuauc gggacagccu gccugauaau uggaauaguu 60

agucuauugc ugcagauagg aaauauaguc ucauuaugga uaagccauuc gauucagacu 120

ggagaaaaaa aucacucuga gacaugcaac cgaaauacca uuacauauga aaacagcaca 180

ugggugaacc aaacuuaugu aaacauuagc aauaucaaca uugcuggugg acagggcgug 240

gcuucaauaa uacuugcugg caauuccucu cuuugcccag uaaaugggug ggcuauauac 300

aguaaagaca acagcauaag gauugguucc aaaggagaca uuuuugucau aagagaacca 360

uucaucucau gcucucacuu ggagugcaga accuuuuuuc ugacccaagg ugccuuguua 420

aaugacaggc auucuaaugg aacugucaag gacaggagcc ccuaccgaac cuuaaugagc 480

ugcccgauug gugaagcucc aucuccguau aauucaaaau ucgaaucagu ugcuugguca 540

gcaagugcau gccaugaugg gaugggaugg cuaacaauug ggauuuccgg uccagauaau 600

ggagcagugg cuguuuugaa auacaauggu auaauaacag auacgauaaa aaguuggaga 660

aacagaauac uaagaacaca agagucagaa uguguuugua uaaacgguuc auguuuuacc 720

auaaugacug auggcccaag caaugggcaa gccuccuaca aaauauucaa aauggagaga 780

gggaagauua uuaagucagu ugaacuggau gcaccuaauu accacuauga ggaaugcucc 840

uguuauccug auacaggcaa aguggugugu gugugcagag acaacuggca ugcuucaaau 900

cgaccguggg uuuccuucga ucagaaucuu gauuaucaaa uaggguacau aagcaguggg 960

guuuuuggug auaacccgcg uucuaaugau gggaagggca auuguggccc aguacuuucu 1020

aauggagcaa auggagugaa aggauuguca uuuagauaug gcaauggugu cuggauagga 1080

agaacuaaaa guaccaacuc uagaagugga uuugagauga uuugggaucc aaauggaugg 1140

acggaaacug auaguaauuu uucuaugaag caagauauua uagcauuaac ugauugguca 1200

ggauauagug gaaguuuugu ucaacacccu gaguuaacag gaaugaauug cauaaggccu 1260

uguuuuuggg uagaauugau cagaggucaa cccaagcaaa gcacaaucug gacuagugga 1320

agcagcauuu cuuucugugg cguggacagu gaaaccgcaa gcuggucaug gccagacgga 1380

gcugaucugc cauucaccau ugacaaguag 1410

<210> 50099
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21469

<400> 50099
augaauccaa aucaaaaaau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaguauggg cuagucacuc aauccaaacu 120

ggaagucaaa accacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggaucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg aaccguuaag gacagaaguc cuuauagggc cuuaaugagc 480

ugcccucuag gugaagcucc gucccauac aauucaaagu uugaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacgaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggc auaauaacug aaaccauaaa aaguuggaaa 660

aaacgaaugu uaagaacaca agagucugaa uguaucugug ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauggggcc gccucguaca aaaucuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uccauuauga ggaauguucc 840

uguuacccag acacuggcac agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaaccug gauuaucaaa uaggauacau cugcaguggg 960

guguucggug acaauccgcg ucccaaagau ggagagggca gcuguaaucc agugacuguu 1020

gauggagcag acggaguaaa gggguuuuca uacaaauaug guaauggugu uuggauagga 1080

agaacuaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acagauaccg acaguaauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ucaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagaggacug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguaaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 50100
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21747

<400> 50100
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50101
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21767

<400> 50101
augaauccaa accaaaagau aauaaucauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50102
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21777

<400> 50102
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau cagagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cugugauaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50103
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21787

<400> 50103
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50104
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21797

<400> 50104
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50105
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21817

<400> 50105
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcagag auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50106
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21827

<400> 50106
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50107
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21837

<400> 50107
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguaa aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugggguc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggaucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50108
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21847

<400> 50108
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50109
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD21857

<400> 50109

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50110

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21867

<400> 50110
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aauuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagu 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50111
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21877

<400> 50111
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50112
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD21897

<400> 50112
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50113
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22494

<400> 50113
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50114
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22504

<400> 50114
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50115
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22514

<400> 50115
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50116
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22524

<400> 50116
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50117
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22534

<400> 50117
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaguccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50118
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22544

<400> 50118
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguugaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50119
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD22557

<400> 50119

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50120
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD22567

<400> 50120
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50121
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22577

<400> 50121
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50122
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22587

<400> 50122
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50123
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22597

<400> 50123
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50124
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22617

<400> 50124
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50125
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22627

<400> 50125
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50126
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22637

<400> 50126
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50127
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22648

<400> 50127
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg gaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa gggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50128
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22658

<400> 50128
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguugaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50129
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22668

<400> 50129
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguugaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50130
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD22688

<400> 50130
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucugga uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50131
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD22698

<400> 50131
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50132
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22725

<400> 50132
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaaa acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50133
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22735

<400> 50133
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50134
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22745

<400> 50134
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50135
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22755

<400> 50135
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcacug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaguccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50136
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22765

<400> 50136
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugauugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50137
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22775

<400> 50137
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50138
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22785

<400> 50138
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc uguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50139
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22795

<400> 50139
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagu 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50140
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22805

<400> 50140
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuuuu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50141
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22815

<400> 50141
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50142
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22825

<400> 50142
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50143
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22835

<400> 50143
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50144
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22845

<400> 50144
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50145
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD22855

<400> 50145
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50146
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22924

<400> 50146
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50147
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22934

<400> 50147
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50148
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22944

<400> 50148
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50149
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22954

<400> 50149
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50150
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD22974

<400> 50150
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

uguuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50151
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23075

<400> 50151
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50152
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADD23085

<400> 50152
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacua 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaauuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50153
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23095

<400> 50153
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50154
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23105

<400> 50154
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50155
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23115

<400> 50155
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

aucuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50156
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23125

<400> 50156
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

aucuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50157
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23135

<400> 50157
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaacauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaccug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50158
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23145

<400> 50158
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50159
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23155

<400> 50159
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50160
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23165

<400> 50160
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50161
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23175

<400> 50161
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50162
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23185

<400> 50162
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50163
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD23195

<400> 50163

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50164

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23223

<400> 50164
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgggucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50165
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23233

<400> 50165
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuggccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucuguccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50166
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23243

<400> 50166
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50167
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23253

<400> 50167
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucua gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg gaaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50168
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23273

<400> 50168
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc gagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50169
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23283

<400> 50169
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugaaauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga ccaaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50170
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23293

<400> 50170
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauac uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50171
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23303

<400> 50171
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgggucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50172
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23313

<400> 50172
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50173
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23323

<400> 50173

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgggucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guauugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50174
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD23333

<400> 50174

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50175
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23358

<400> 50175
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgagaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50176
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23368

<400> 50176
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50177
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23378

<400> 50177
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50178
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23388

<400> 50178
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50179
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23398

<400> 50179
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50180
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23408

<400> 50180
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccaggaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50181
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23438

<400> 50181
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

ugggugaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggg uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauagcuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50182
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23448

<400> 50182
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagugga 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50183
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23458

<400> 50183
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50184
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD23468

<400> 50184
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaguaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50185
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD23478

<400> 50185
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50186
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23488

<400> 50186
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50187
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23498

<400> 50187
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucauauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaacauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50188
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23508

<400> 50188
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50189
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23518

<400> 50189
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50190
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD23997

<400> 50190
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50191
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24007

<400> 50191
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50192
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24017

<400> 50192
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50193
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24024

<400> 50193
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50194
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24025

<400> 50194
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50195
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24026

<400> 50195
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50196
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24027

<400> 50196
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50197
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24028

<400> 50197
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50198
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24029

<400> 50198
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50199
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD24030

<400> 50199
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugggcag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50200
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24031

<400> 50200
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50201
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD24032

<400> 50201
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50202
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25231

<400> 50202
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga agaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

aguagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50203
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25233

<400> 50203
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuuguua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50204
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25235

<400> 50204
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

uguuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50205
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25244

<400> 50205
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaaguguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

uguuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50206
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADD25246

<400> 50206
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caccaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50207
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25248

<400> 50207
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aaccuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauauau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50208
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25250

<400> 50208
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccgcuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacuaugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50209
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25255

<400> 50209
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

uguuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50210
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25259

<400> 50210
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50211
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25262

<400> 50211
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcag auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50212
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25266

<400> 50212
augaauccaa accaaaagau aauaaccauu gguucggucu gcaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50213
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25268

<400> 50213
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu ugaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50214
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25271

<400> 50214
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50215
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25274

<400> 50215
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50216
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25276

<400> 50216
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50217
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD25278

<400> 50217

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccgcuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50218

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25280

<400> 50218
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50219
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25282

<400> 50219
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa guauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50220
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25284

<400> 50220
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50221
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25287

<400> 50221
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50222
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25291

<400> 50222
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50223
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25293

<400> 50223
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50224
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25300

<400> 50224
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug ucaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50225
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25304

<400> 50225
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aacuuaauau uacaaauugg aaacauaguc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugauaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcaguag cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50226
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25306

<400> 50226
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccgcuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugauaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augaaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50227
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25308

<400> 50227

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50228
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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<400> 50228
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50229
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADD25312

<400> 50229
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50230
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25314

<400> 50230
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50231
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD25316

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50232
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29799

<400> 50232
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ugccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggaguc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaaggu uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50233
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29800

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguugaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50234
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29801

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

ugcccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaaa 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50235
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29802

<400> 50235
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50236
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29803

<400> 50236
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50237
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29804

<400> 50237
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucu aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50238
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29805

<400> 50238
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuucugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50239
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD29806

<400> 50239
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50240
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29807

<400> 50240
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50241
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD29808

<400> 50241
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaaggu uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50242
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD52538

<400> 50242
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50243
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74353

<400> 50243
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50244
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74373

<400> 50244
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcaauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50245
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74383

<400> 50245
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50246
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74401

<400> 50246
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga acauucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50247
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74411

<400> 50247
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacg uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc aucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacgauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaguggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaagcggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50248
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74421

<400> 50248
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50249
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74431

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50250
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74441

<400> 50250
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggccauauac 300

agcaaagaca acagcauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc cugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaucuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50251
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74451

<400> 50251
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga acauucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50252
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74461

<400> 50252
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50253
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74471

<400> 50253
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cguuuaccau ugacaaguaa 1410

<210> 50254
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74481

<400> 50254
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50255
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74491

<400> 50255
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50256
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74501

<400> 50256
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga acauucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50257
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74511

<400> 50257
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50258
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74521

<400> 50258
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50259
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74531

<400> 50259
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccc 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50260
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADD74551

<400> 50260
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacuau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50261
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74561

<400> 50261
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50262
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74571

<400> 50262
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50263
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74581

<400> 50263
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacgcugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50264
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74591

<400> 50264
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50265
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74601

<400> 50265
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50266
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74611

<400> 50266
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaauaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50267
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74621

<400> 50267
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50268
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74631

<400> 50268
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50269
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74641

<400> 50269
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50270
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74651

<400> 50270
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucgug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50271
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD74661

<400> 50271

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50272

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74671

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50273
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74681

<400> 50273
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50274
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74691

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuugccacuc aauucaacuu 120

gggaaucaaa aucagaucga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50275
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74701

<400> 50275
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug ucaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50276
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74711

<400> 50276
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50277
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74721

<400> 50277
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaac 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50278
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74731

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50279
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74741

<400> 50279
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50280
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74751

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaauaaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug aaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaaugaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50281
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD74761

<400> 50281

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uauaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50282
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD74791

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaac 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucaucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50283
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74811

<400> 50283
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cuccccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcagag auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50284
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADD74821

<400> 50284
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50285
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74831

<400> 50285
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcauguu ugaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50286
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74841

<400> 50286
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50287
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74851

<400> 50287
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50288
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74861

<400> 50288
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50289
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74871

<400> 50289
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50290
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74881

<400> 50290
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gcaucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50291
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74891

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50292
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74901

<400> 50292
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaac 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50293
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74911

<400> 50293
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucgu gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50294
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74921

<400> 50294
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50295
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74941

<400> 50295
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga acuuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50296
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74961

<400> 50296
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauugg aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc auacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50297
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74971

<400> 50297
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50298
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74981

<400> 50298
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaagcggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccgaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50299
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD74991

<400> 50299
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50300
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75001

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50301
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75011

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugaucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50302
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75031

<400> 50302
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50303
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75041

<400> 50303
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaaaacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50304
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75051

<400> 50304
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50305
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75061

<400> 50305
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cuuugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50306
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75071

<400> 50306
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu ugaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50307
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75081

<400> 50307
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50308
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75091

<400> 50308
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaagcggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50309
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75101

<400> 50309
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggagcuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50310
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75111

<400> 50310
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauccaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50311
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75121

<400> 50311
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg gaaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50312
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75131

<400> 50312
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50313
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD75141

<400> 50313
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50314
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADD75161

<400> 50314
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcug 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcu cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauauaaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacagguaa 1410

<210> 50315
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD84500

<400> 50315
augaauccaa accaaaauau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuauu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50316
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD84502

<400> 50316
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50317
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD84503

<400> 50317
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50318
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD84504

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuucucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg uccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50319
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD84505

<400> 50319
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50320
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD84506

<400> 50320
augaauccaa accaaaauau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50321
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD92528

<400> 50321
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caacuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggacauagcg ggaguucugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50322
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96769

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50323
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96779

<400> 50323
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50324
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96789

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50325
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD96799

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg augggccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50326

<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96809

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa guauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugagcuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50327
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggg uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50329
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96839

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50330
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96849

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga acauucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50331
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96859

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50332
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96869

<400> 50332
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccaccc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuuguaau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaaa 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50333
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96879

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu gggaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg uccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50334
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96889

<400> 50334
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aauaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gcaucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50335
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD96899

<400> 50335

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50336
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD96909

<400> 50336

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50337
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96919

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50338
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96929

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50339
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96939

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50340
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADD96959

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50341
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96969

<400> 50341
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50342
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD96989

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca auaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcu cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50343
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97038

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaauacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauucuucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

auugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucaacaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugggg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50344
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97048

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aauucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50345
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97058

<400> 50345
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag gaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50346
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD97069

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50347
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD97126

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag gaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50348
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97164

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaacauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50349
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<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97174

<400> 50349
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50350
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97184

<400> 50350
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50351
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97194

<400> 50351
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacgccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50352
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97204

<400> 50352
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcu cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50353
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97214

<400> 50353
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50354
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97224

<400> 50354
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50355
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97234

<400> 50355
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50356
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97244

<400> 50356
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag gaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50357
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97254

<400> 50357
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag gaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50358
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97264

<400> 50358
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50359
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97274

<400> 50359
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50360
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97284

<400> 50360
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucugc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50361
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97294

<400> 50361
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50362
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97314

<400> 50362
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50363
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97334

<400> 50363
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50364
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97344

<400> 50364
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50365
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97354

<400> 50365
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50366
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97384

<400> 50366
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacac aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaggg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50367
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97394

<400> 50367
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagccagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50368
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADD97404

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50369
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADD97424

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50370
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97434

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50371
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97444

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50372
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97454

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccua uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

agugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50373
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97464

<400> 50373
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaacaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50374
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97474

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cuccccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50375
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97484

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50376
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97494

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuc ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50377
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADD97504

<400> 50377
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50378
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADD97514

<400> 50378
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugc guaugcagag auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagugga 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50379
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97534

<400> 50379
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50380

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 50380
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50381
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97554

<400> 50381
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaggaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc ccuuuaccau ugacaaguaa 1410

<210> 50382
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97564

<400> 50382
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacac aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaggg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50383
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97574

<400> 50383
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50384
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97584

<400> 50384
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50385
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97681

<400> 50385
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaauaaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaccca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uauaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50386
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97691

<400> 50386
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcu cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauaug gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50387
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97701

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50388
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97891

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaac caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50389
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97901

<400> 50389

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50390
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD97911

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugc guaugcagag auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagugga 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50391
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97921

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcuu 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50392
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97931

<400> 50392
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcug 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50393
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97941

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50394
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADD97951

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccaucaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50395
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97961

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caaugccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50396
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97971

<400> 50396
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcu cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauaug gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50397
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97981

<400> 50397
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50398
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD97991

<400> 50398
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaauacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauucuucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

auugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucaacaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50399
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98001

<400> 50399
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacugucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50400
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98011

<400> 50400
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuagcuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50401
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD98031

<400> 50401
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50402
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98041

<400> 50402
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacugucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50403
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98051

<400> 50403
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50404
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98061

<400> 50404
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50405
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98071

<400> 50405
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50406
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98081

<400> 50406
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcauugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50407
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98091

<400> 50407
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacaa gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50408
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98101

<400> 50408
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccaaacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucugu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50409
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98111

<400> 50409
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuuccgg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuuaggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50410
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98121

<400> 50410
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guauccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50411
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98131

<400> 50411
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50412
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98141

<400> 50412
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50413
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98151

<400> 50413
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacaa gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50414
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADD98161

<400> 50414
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacac aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaggg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuaggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50415
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98171

<400> 50415
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagacagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cucuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50416
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98181

<400> 50416
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aacuuaauau uacaaauugg aaacaugauc ucaauaugga uuagccacuc aauucaacuu 120

gagaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca gcuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50417
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98201

<400> 50417
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50418
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADD98211

<400> 50418
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gagcuggaga 660

aacaacauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50419
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20324

<400> 50419
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggagugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50420
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20334

<400> 50420
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50421
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20344

<400> 50421
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50422
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADE20354

<400> 50422
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50423
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20378

<400> 50423
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50424
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20391

<400> 50424
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50425
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20631

<400> 50425
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50426
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20641

<400> 50426
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50427
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20651

<400> 50427
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50428
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20661

<400> 50428
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50429
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20671

<400> 50429
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50430
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20681

<400> 50430
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50431
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20701

<400> 50431
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50432
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20711

<400> 50432
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50433
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<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20721

<400> 50433
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacagguaa 1410

<210> 50434

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20731

<400> 50434
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50435
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20741

<400> 50435
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50436
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20751

<400> 50436
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50437
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20761

<400> 50437
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50438
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20781

<400> 50438
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50439
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20791

<400> 50439
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50440
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20801

<400> 50440
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaagucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50441
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20811

<400> 50441
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucc 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50442
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20821

<400> 50442
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50443
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20831

<400> 50443

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50444
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADE20841

<400> 50444

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50445
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20851

<400> 50445
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50446
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20861

<400> 50446
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacac aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaggg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50447
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20871

<400> 50447
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gcccccaacu aucacuauga ggaaugcucc 840

ugcuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50448
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20881

<400> 50448
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50449
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20891

<400> 50449
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcagg accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagcggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50450
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20901

<400> 50450
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50451
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20911

<400> 50451
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacaa gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50452
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20921

<400> 50452
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50453
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20931

<400> 50453
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugc guaugcagag auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagugga 960

auuuucggag acaauccacg uccuaaugau aagacaggca guuguggucc aguauugucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauugguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50454
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADE20941

<400> 50454
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50455
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADE20951

<400> 50455

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcuccccuuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg uccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagaugucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50456
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20961

<400> 50456
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guauccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacgac auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50457
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20971

<400> 50457
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guauccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50458
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20981

<400> 50458
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacac aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaggg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50459
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE20991

<400> 50459
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga ccuaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50460
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE21001

<400> 50460
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacac aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuuaucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaggg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugccu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau uaagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50461
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE21011

<400> 50461
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cugacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50462
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE21021

<400> 50462
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50463
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE21031

<400> 50463
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aauucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacugucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50464
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE21041

<400> 50464
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucaau cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50465
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE21051

<400> 50465
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacaa gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50466
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE21071

<400> 50466
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50467
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28752

<400> 50467
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50468
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28763

<400> 50468
augaauccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50469
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28773

<400> 50469
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50470
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28783

<400> 50470
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50471
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28803

<400> 50471
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacacuaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50472
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28813

<400> 50472
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50473
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28823

<400> 50473
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50474
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28843

<400> 50474
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuguug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaauuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50475
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28853

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50476
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADE28884

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuguug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaauuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50477
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aguucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50478
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28904

<400> 50478
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

auugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cguuuaccau ugacaaguaa 1410

<210> 50479
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28914

<400> 50479
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggga guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50480
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28924

<400> 50480
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50481
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28934

<400> 50481
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugua uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50482
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28954

<400> 50482
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugc guaugcagag auaauuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagugga 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50483
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28964

<400> 50483
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaucaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaauuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50484
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE28974

<400> 50484
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50485
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29004

<400> 50485
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaaaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50486
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29014

<400> 50486
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaacc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50487
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29024

<400> 50487
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucc ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaaa 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc agugucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

aaugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50488

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29034

<400> 50488
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gcgaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50489
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29044

<400> 50489
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50490
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29054

<400> 50490
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gcgaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50491
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29064

<400> 50491
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga agaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aaugggggcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50492
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29087

<400> 50492
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaaa accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50493
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE29097

<400> 50493
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50494
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE34194

<400> 50494
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 50495
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE34205

<400> 50495
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 50496
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE34216

<400> 50496
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaagg 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucuggguaac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 50497
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE34227

<400> 50497

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucuggggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 50498
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADE34238

<400> 50498
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucaggg agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 50499
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE34260

<400> 50499
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gucuauauaa 1410

<210> 50500
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE34271

<400> 50500
augaauccaa aucagaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uucggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaguuuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 50501
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE45502

<400> 50501
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

ugcccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50502
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE45504

<400> 50502
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50503
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE45506

<400> 50503
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaaguguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50504
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE45508

<400> 50504
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50505
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE45510

<400> 50505
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50506
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE45512

<400> 50506
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcuccccuuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50507
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE45514

<400> 50507
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uuccaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50508
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADE45516

<400> 50508
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuu aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50509
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF10069

<400> 50509
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg gaccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50510
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10079

<400> 50510
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50511
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10089

<400> 50511
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauacgu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

gucuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50512
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10099

<400> 50512
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaguauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50513
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10109

<400> 50513
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca auuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaguauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50514
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10129

<400> 50514
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcccugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50515
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10146

<400> 50515
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguaa aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccaggaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg cguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50516
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10166

<400> 50516
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50517
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10176

<400> 50517
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50518
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADF10192

<400> 50518
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50519
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10247

<400> 50519
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50520
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10290

<400> 50520
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50521
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10304

<400> 50521
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcuggguugc cauuuaccau ugacaaguaa 1410

<210> 50522
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10340

<400> 50522
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50523
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10361

<400> 50523
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50524
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10371

<400> 50524
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50525
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10407

<400> 50525
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50526
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10472

<400> 50526
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaacgau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50527
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10616

<400> 50527
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50528
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10688

<400> 50528
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50529
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10726

<400> 50529
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaaaggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50530
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADF10773

<400> 50530
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50531
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10837

<400> 50531
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaaa 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

gggguauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50532
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10889

<400> 50532
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50533
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF10947

<400> 50533
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu ugcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50534
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF11010

<400> 50534
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50535
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27355

<400> 50535
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag gaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggaugggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gauacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50536
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27356

<400> 50536
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaaacguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag gaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gauacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50537
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27357

<400> 50537
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50538
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27358

<400> 50538
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacuggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50539
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27360

<400> 50539
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacgg acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50540
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27361

<400> 50540
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugacug auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50541
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27362

<400> 50541
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50542

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27363

<400> 50542
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau guuccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50543
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27364

<400> 50543
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50544
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27365

<400> 50544
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50545
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27366

<400> 50545
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50546
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27382

<400> 50546
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgggucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gccaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50547
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27392

<400> 50547
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50548
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27402

<400> 50548
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacauaagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga auacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50549
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27422

<400> 50549
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuuguaau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaaa 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50550
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27432

<400> 50550
augaauccaa accaaaagau aauaaccauu gguucggucu gugugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50551
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27442

<400> 50551

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaaua ucaauaugga uuagccacuc aauucaacuu 120

gagaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50552
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF27462

<400> 50552
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga agcaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggccguauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50553
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF27472

<400> 50553
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacgg ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50554
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27482

<400> 50554
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagguuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50555
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27492

<400> 50555
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga accaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucaau cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacagucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50556
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27502

<400> 50556
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50557
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27512

<400> 50557
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50558
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27522

<400> 50558
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau ugggauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaauuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50559
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27532

<400> 50559
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50560
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27542

<400> 50560
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aacaauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

ugcccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50561
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27552

<400> 50561
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggauuggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauauggg uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaaaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50562
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27562

<400> 50562
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccaaacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50563
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27572

<400> 50563
augaauccaa accaaaagau aauaaccauu gguucagucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50564
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27582

<400> 50564
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccauu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50565
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27592

<400> 50565
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50566
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27602

<400> 50566
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaagg 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauagcuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50567
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27612

<400> 50567
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50568
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27622

<400> 50568
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga agaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aaugggggcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50569
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27632

<400> 50569
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggauuggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaaaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50570
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27642

<400> 50570
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50571
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27652

<400> 50571
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50572
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27662

<400> 50572
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aacaauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

ugcccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu guaaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50573
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27672

<400> 50573
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gcgaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50574
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27682

<400> 50574
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuucuguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauuu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50575
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27692

<400> 50575
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguaa aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggagcuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50576
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27702

<400> 50576
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau cgacaaguaa 1410

<210> 50577
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27712

<400> 50577
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauccaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucauuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50578
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27788

<400> 50578
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50579
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27798

<400> 50579
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaaa ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaauuug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50580
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27808

<400> 50580
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggauuggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaaaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50581
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27818

<400> 50581
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuuuuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

auaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50582
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27838

<400> 50582
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aauucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50583
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27848

<400> 50583
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aauucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50584
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADF27858

<400> 50584
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

ucaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacggu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50585
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27878

<400> 50585
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacggu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50586
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27888

<400> 50586
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuucaguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50587
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27898

<400> 50587
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50588
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27908

<400> 50588
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50589
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27918

<400> 50589
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50590
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27938

<400> 50590
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcuuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag gguuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaugu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50591
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27948

<400> 50591
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgggucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg uuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50592
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF27958

<400> 50592
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguaa aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50593
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27968

<400> 50593
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga gacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50594
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27978

<400> 50594
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50595
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF27988

<400> 50595

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggauuggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuucuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucgga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaaaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50596

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF27998

<400> 50596
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugaaucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50597
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28008

<400> 50597
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50598
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28018

<400> 50598
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu caacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

auaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag gguuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50599
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28028

<400> 50599
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50600
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF28038

<400> 50600
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauacgu uaacaucagc aacaccaacu uugcuacugg acaguuagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacagac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agauuuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50601
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28048

<400> 50601
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50602
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28058

<400> 50602
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50603
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28068

<400> 50603
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccacuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50604
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28078

<400> 50604
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cuuugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50605
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28088

<400> 50605

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50606
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF28110

<400> 50606
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50607
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF28120

<400> 50607
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucauuauga ggaaugcucc 840

uguuauccug auucuagcga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50608
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF29919

<400> 50608
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50609
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF42692

<400> 50609
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuacuau ugacaaguaa 1410

<210> 50610
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF42702

<400> 50610
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccc 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50611
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF42712

<400> 50611
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50612
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF42722

<400> 50612
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccguac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50613
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF42732

<400> 50613
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50614
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF42742

<400> 50614
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50615
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF58339

<400> 50615
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50616
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF58348

<400> 50616
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuggaacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50617
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF58350

<400> 50617
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaacc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50618
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF58352

<400> 50618
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaacc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50619
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF80459

<400> 50619
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca ucacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugacuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggagugaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag auaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacagucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50620
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF80503

<400> 50620
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aacuuaauau uacaaauugg aaacauaacc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagacaucg ugggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50621
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83744

<400> 50621
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaaa 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucgucc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 50622
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83755

<400> 50622
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaaccgc cauccugaua acuacuguaa cauugcauuu caagcaaugu 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacgcua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacaccuag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 50623
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83766

<400> 50623
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg acaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50624
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83776

<400> 50624
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcuugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50625
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83786

<400> 50625
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauccaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacggu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50626
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83796

<400> 50626
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauccaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

aucuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gaaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaagaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50627
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83806

<400> 50627
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc uucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50628
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83816

<400> 50628
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacgcugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50629
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83826

<400> 50629
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50630
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83836

<400> 50630
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50631
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83846

<400> 50631
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50632
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83856

<400> 50632
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50633
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83866

<400> 50633
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggc uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50634
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83876

<400> 50634
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaaa 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50635
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83888

<400> 50635
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga ucagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

ugggugaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcagg accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggg uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauagcuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50636
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83898

<400> 50636
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccaccc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgggucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaggaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50637
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF83908

<400> 50637
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug ugaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

agaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggucu 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50638
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADF83918

<400> 50638
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcagag auaacuggca cggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50639
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF84444

<400> 50639
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagua 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca cggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50640
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF84462

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacgggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50641
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF84472

<400> 50641
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauacagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50642
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF84482

<400> 50642
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cgcaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacuguga guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50643
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADF84492

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaag aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50644
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADF85020

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADF87155

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg uaauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADF87165

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gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagacaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cgcaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50647
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADF87175

<400> 50647
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucaucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauacagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50648
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADF87185

<400> 50648
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50649
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF87195

<400> 50649

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucaucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauacagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50650

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADF87205

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50651
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87215

<400> 50651
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50652
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADF87235

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu ugcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50653
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87245

<400> 50653
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucaucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauacagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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gcugaguugc cauuuaccau ugacaaguaa 1410

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<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87265

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucaucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauacagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50655
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87285

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaauaaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaaugaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uaucagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50656
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADF87295

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50657
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADF87305

<400> 50657
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50658
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87334

<400> 50658
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50659
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87344

<400> 50659

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aauucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50660
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF87354

<400> 50660
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauuacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50661
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87364

<400> 50661
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuuuggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50662
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87374

<400> 50662
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50663
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF87384

<400> 50663
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50664
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADF97251

<400> 50664
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<211> 1410
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<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADF97252

<400> 50665
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaaa ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50666
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF97253

<400> 50666
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50667
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF97254

<400> 50667
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50668
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF97255

<400> 50668
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaucacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga ccuaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50669
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADF97256

<400> 50669
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50670
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF97257

<400> 50670
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50671
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADF97837

<400> 50671
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50672
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG08120

<400> 50672
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggaguc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50673
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21408

<400> 50673
augaauccaa aucagaagau aauaaccauc ggaucaaucu guaugguaau ugggauaguu 60

agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauuuaucu cuuugucccg uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agaggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg ccguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaauauaa ugagaacuca ggagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuuuuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 50674
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21409

<400> 50674
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50675
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG21415

<400> 50675
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguccc gguguucccu 960

aacggggcau auggggugaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

aggaccaaaa guacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50676
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21417

<400> 50676
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaugggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccgggga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuua gaauaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50677
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21419

<400> 50677
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga aucaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

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gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50678
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21423

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaagg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaugggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga gaucacaugu gugugcaggg auaguuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucaguaaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg gaaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagaggacgg ccuaaagaga gcacaauuug gaccagugga 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 50679
<211> 1350
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21424

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agcuuaaugu uacaaauugg aaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga aucaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc aagggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

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gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50680
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21426

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gagaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggacg uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaag gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugagg caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 50681
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21428

<400> 50681
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucaucc aauucagaca 120

gggaaucaau gccaagauaa accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaaucacag acaccaucaa gaguuggagg 600

aacagcauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc aguguucccu 960

aacggggcau acgggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50682
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21430

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac uuuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccgggga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50683
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21432

<400> 50683
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agaggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagcgcuu gccaugaugg caccaguugg cugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaaccca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccgguga aaucacgugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccc 960

aacggggcau augggguaaa aggauuuuca uuuagauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

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uguuuuuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 50684
<211> 1350
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG21438

<400> 50684
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agcuuaaugu uacaaauugg gaacaugauc ucaauaugga ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggccgugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugcgcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccgggga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaguggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50685
<211> 1350
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG21440

<400> 50685
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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga aucaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccguau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg gguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucacuau ugacaaguaa 1350

<210> 50686
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21442

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agcuuaaugu uacaaauugg gaauaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucgguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuugugau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuucu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucaccugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gauuagauug cauaagaccu 1200

uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50687
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21444

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga aucaaucagc aacacuaaau uucuuacuga gaaagcugug 180

acuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cucuccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccaugga uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguccc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

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gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50688
<211> 1350
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG21446

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agcuuaaugu uacaaauugg gaauaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucgguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaua acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagcca 300

uucaucucau gcucccacuu ggaaugcaga acuuucuucu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg aacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucaccugu gugugcaggg auaauuggca uggaucaaau 840

aggccauggg uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucaguaaag caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

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gcugaguugc cauucaccau ugacaaguaa 1350

<210> 50689
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG21448

<400> 50689
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agcuuaaugu uacaaauugg gaauaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccauuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccaugga uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

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uguuucuggg uugaguuaau cagagggcgg ccuaaagaga gcacaauuug gaccagugga 1260

agcagcauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 50690
<211> 1350
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG21450

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agcuuaaugu uacaaauugg gaacaugauc ucaauauggg ucagucauuc aauucagaca 120

gggaaucaau gccaagauga accaaucagc aacacuaaau uucuuacuga gaaagcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuuguccca uuagcggaug ggcuguguac 240

aguaaggaca acagcauaag gaucgguucc agggggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccauuu ggaaugcaga acuuucuuuu uaacccaggg agccuuacug 360

aaugacaagc acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccugugg gugaggcucc uuccccauau aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg ucccgacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acaccaucaa gaguuggagg 600

aacaacauaa ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaguggggcag gcaucauaua agaucuucaa aauggaaaag 720

ggaaaagugg uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggagugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggaucaaau 840

aggccaugga uaucuuucaa ucaaaauuug gaguaucaaa uaggauauau augcagugga 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guugugguccc gguguucccu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaccc aaaugggugg 1080

acuggaacgg acaguagcuu uucagugaag caagauaucg uagcaauaac ugauugguca 1140

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agcaguauau cuuuuugugg uguaaauggu gacacuguua guuggucuug gccagacggu 1320

gcugaguugc cauucaccau ugacaaguag 1350

<210> 50691
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG27797

<400> 50691
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50692
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG27983

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauc aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacuaugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50693
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<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG27989

<400> 50693
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50694
<211> 1410
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauc aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50695
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG28013

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50696
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG42086

<400> 50696
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucaacaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50697
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG42096

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauagguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50698
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG42106

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50699
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42116

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50700
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG42126

<400> 50700
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucauuauga ggaaugcucc 840

uguuauccug auucuagcga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50701
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG42136

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacagaagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gcuucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50702
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42146

<400> 50702
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50703
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42156

<400> 50703
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50704
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42166

<400> 50704
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50705
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42186

<400> 50705
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugacggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50706
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42196

<400> 50706
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50707
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42206

<400> 50707
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguaa aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50708
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42216

<400> 50708
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaauugc cauuuaccau ugacaaguaa 1410

<210> 50709
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42226

<400> 50709
augaauccaa accaaaagau aauaaucauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguaa aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucguca 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50710
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADG42236

<400> 50710
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg acaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50711
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42246

<400> 50711
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50712
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42256

<400> 50712
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cuuugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauaug gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50713
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG42276

<400> 50713
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cuuugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50714
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42296

<400> 50714
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagagcaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50715
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42306

<400> 50715
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucggac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50716
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42316

<400> 50716
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50717
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42326

<400> 50717
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50718
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42336

<400> 50718
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50719
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42346

<400> 50719
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50720
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42356

<400> 50720
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50721
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG42366

<400> 50721

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccgugga uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50722

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42376

<400> 50722
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

ugggugaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50723
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42386

<400> 50723
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuugcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaaa ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaagcggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaguu cucaauaaag caggauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50724
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42396

<400> 50724
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggacg uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguaa aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50725
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42406

<400> 50725
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aacuuaauau uacaaauugg aaacauacuc ucaacaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagu aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50726
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42426

<400> 50726
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50727
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42436

<400> 50727
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucggac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50728
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42446

<400> 50728
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccgcga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50729
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42456

<400> 50729
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50730
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42466

<400> 50730
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50731
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG42476

<400> 50731

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuagcggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50732
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG42486

<400> 50732
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50733
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42496

<400> 50733
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc aaacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50734
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42506

<400> 50734
augaauccaa accaaaagau aauaaucauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50735
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42516

<400> 50735
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50736
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42526

<400> 50736
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcauguu uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugagcuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50737
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42536

<400> 50737
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaccagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50738
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG42546

<400> 50738
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aauaccaacu uugcugcugg acagucagug 240

guuuccguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uagggauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50739
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42556

<400> 50739
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aauaccaacu uugcugcugg acagucagug 240

guuuccguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uagggauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50740
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42566

<400> 50740
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acauucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50741
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42576

<400> 50741
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccauacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50742
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG42586

<400> 50742
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50743
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG42606

<400> 50743
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguaa aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcuccccuuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uauccuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuucccau ugacaaguaa 1410

<210> 50744
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42616

<400> 50744
augaauucaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucgu gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50745
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42626

<400> 50745
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcc 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50746
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42636

<400> 50746
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaga aucagacuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50747
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42646

<400> 50747
augaauccaa accaaaggau aauaaccauu gguucgguau guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguacc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50748
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42656

<400> 50748
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50749
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42666

<400> 50749
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc aaacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucagaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50750
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42676

<400> 50750
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aauaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50751
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42686

<400> 50751
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50752
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42696

<400> 50752
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50753
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42706

<400> 50753
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaaa 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50754
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42716

<400> 50754
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50755
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42726

<400> 50755
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugcg uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50756
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42746

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuuuggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50757
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42756

<400> 50757
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50758
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42766

<400> 50758
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50759
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42776

<400> 50759
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaaccaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50760
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42796

<400> 50760
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaaccaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50761
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42806

<400> 50761
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacuguga guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50762
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42816

<400> 50762
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50763
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42826

<400> 50763
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucc ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50764
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADG42836

<400> 50764
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugaaauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50765
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42846

<400> 50765
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacac aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50766
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42856

<400> 50766
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacccaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50767
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42866

<400> 50767
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50768
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42876

<400> 50768
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50769
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG42886

<400> 50769
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacugucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50770
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<212> RNA
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<220>
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<400> 50770
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcu cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauaug gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50771
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 50771
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcu cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauaug gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50772
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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<400> 50772
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50773
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG42926

<400> 50773
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50774
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucaucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50775
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<212> RNA
<213> Artificial Sequence

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50776

<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADG58913

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca ucacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugacuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucugga uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50777
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58914

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg ugggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50778
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<212> RNA
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neuraminidase__InfluenzaA__ADG58916

<400> 50778
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuuuu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<211> 1410
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<400> 50779
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg ugggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50780
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58918

<400> 50780
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca ucacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugacuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50781
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58919

<400> 50781
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca ucacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca ugguucgaau 900

cgaccguggg ugacuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucugga uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50782
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58920

<400> 50782
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauauagaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50783
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG58921

<400> 50783
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauauagaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50784
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58922

<400> 50784
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauauagaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50785
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58923

<400> 50785

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauauagaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50786
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG58924

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauauagaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50787
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58925

<400> 50787
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauauagaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50788
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58926

<400> 50788
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauauagaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50789
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58927

<400> 50789
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauauagaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugacug auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50790
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58928

<400> 50790
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg ugggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50791
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58929

<400> 50791
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg ugggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50792
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58931

<400> 50792
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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuaaccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50793
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58932

<400> 50793
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuaaccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50794
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58933

<400> 50794
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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuaaccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50795
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58934

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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuaaccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50796
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG58935

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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuaaccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50797
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADG58936

<400> 50797
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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuaaccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50798
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58937

<400> 50798
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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuaaccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50799
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG58938

<400> 50799
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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuaaccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50800
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59589

<400> 50800
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcaaugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50801
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59590

<400> 50801
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50802
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59591

<400> 50802
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50803
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50804
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59593

<400> 50804
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50805
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59594

<400> 50805
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50806
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG59595

<400> 50806
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50807
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<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aggacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50808
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59597

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aaccuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50809
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<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50810
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG59599

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50811
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59601

<400> 50811
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50812
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59602

<400> 50812
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50813
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG59603

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50814
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG59604

<400> 50814
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagug ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50815
<211> 1410
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<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG59605

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50816
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59606

<400> 50816
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50817
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59607

<400> 50817
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50818
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADG59608

<400> 50818
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50819
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59609

<400> 50819
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacc uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50820
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59610

<400> 50820
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gcuccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg gcuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50821
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59611

<400> 50821
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcagugga 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50822
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADG59612

<400> 50822
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag auaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg ugggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50823
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59613

<400> 50823
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aacuuaauau uacaacuugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauagcuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacagucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50824
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADG59614

<400> 50824
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50825
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01811

<400> 50825
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50826
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01821

<400> 50826
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50827
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01831

<400> 50827
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50828
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01841

<400> 50828
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50829
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADH01851

<400> 50829

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50830

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01861

<400> 50830
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50831
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01871

<400> 50831
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50832
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01881

<400> 50832
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50833
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01891

<400> 50833
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu caacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50834
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADH01901

<400> 50834
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50835
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01911

<400> 50835
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50836
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01921

<400> 50836
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuacuau ugacaaguaa 1410

<210> 50837
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01931

<400> 50837
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucauuauga ggaaugcucc 840

uguuauccug auucuagcga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50838
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01941

<400> 50838
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacugau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50839
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01951

<400> 50839

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50840
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADH01961

<400> 50840
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50841
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01981

<400> 50841
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

agcaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac cuuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaauggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaacccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50842
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH01991

<400> 50842
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauu ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50843
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH02011

<400> 50843
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguaa aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50844
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADH02021

<400> 50844
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucaacaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50845
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24510

<400> 50845
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50846
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24516

<400> 50846
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

agcaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50847
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24518

<400> 50847
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50848
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24522

<400> 50848
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc gauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50849
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24524

<400> 50849
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauuaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50850
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADI24526

<400> 50850
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50851
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24528

<400> 50851
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac cuuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50852
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24530

<400> 50852
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauuaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50853
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24532

<400> 50853
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aguggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauuaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50854
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24538

<400> 50854
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50855
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24548

<400> 50855
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50856
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24556

<400> 50856
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca auaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gccaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga ucugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50857
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24558

<400> 50857
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50858
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24560

<400> 50858
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50859
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24562

<400> 50859
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50860
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24564

<400> 50860
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50861
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24566

<400> 50861
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50862
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24568

<400> 50862
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggua guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuggaacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50863
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24570

<400> 50863
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcugg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50864
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADI24572

<400> 50864
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac acuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg gcuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50865
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24574

<400> 50865
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauuaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50866
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24576

<400> 50866
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauuaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50867
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24580

<400> 50867
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaac caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50868
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24582

<400> 50868
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50869
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24584

<400> 50869
augaauccaa aucaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucc cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaaucucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50870
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24592

<400> 50870
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaac caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

aguagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50871
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADI24598

<400> 50871
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaac caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50872
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADI24604

<400> 50872
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50873
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24620

<400> 50873
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaac caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccauggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggu 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50874
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI24622

<400> 50874
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaccaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50875
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI46780

<400> 50875
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50876
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI46789

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aacuuaaugu uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaaugaacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50877
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADI48185

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50878
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48187

<400> 50878
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuucuguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50879
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48189

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuucuguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50880
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48191

<400> 50880
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50881
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48193

<400> 50881
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50882
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48195

<400> 50882
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50883
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADI48197

<400> 50883

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaauuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50884

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48199

<400> 50884
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50885
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48201

<400> 50885
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50886
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48203

<400> 50886
augaauccaa accaaaagau aauaaccauu gguucggucu guaugaccau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50887
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48205

<400> 50887
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccacuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50888
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48207

<400> 50888
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50889
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48209

<400> 50889
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaauuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50890
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48211

<400> 50890
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaauuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50891
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48213

<400> 50891
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50892
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48215

<400> 50892
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaaguguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaauuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50893
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48217

<400> 50893

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50894
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADI48219

<400> 50894
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50895
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48221

<400> 50895
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50896
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48625

<400> 50896
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50897
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48635

<400> 50897
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50898
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48655

<400> 50898
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50899
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48665

<400> 50899
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50900
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48675

<400> 50900
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cucaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50901
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48685

<400> 50901
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaauggugc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucgug gccagacggu 1380

gcugaguugc cauuuacuau ugacaaguaa 1410

<210> 50902
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48695

<400> 50902
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50903
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48705

<400> 50903
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50904
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADI48715

<400> 50904
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50905
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADI48725

<400> 50905
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50906
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48735

<400> 50906
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uuggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50907
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48745

<400> 50907
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50908
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48755

<400> 50908
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaucag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50909
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48765

<400> 50909
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50910
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<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48775

<400> 50910
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50911
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48785

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50912
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI48795

<400> 50912
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50913
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49032

<400> 50913
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50914
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49243

<400> 50914
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau guuccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga agaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50915
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49263

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50916
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49273

<400> 50916
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50917
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49283

<400> 50917
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50918
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49315

<400> 50918
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaaguguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50919
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49325

<400> 50919
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50920
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49335

<400> 50920
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50921
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49345

<400> 50921
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaac caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacc uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugacguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50922
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49355

<400> 50922
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50923
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49365

<400> 50923
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50924
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49375

<400> 50924
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50925
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI49385

<400> 50925
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50926
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADI49395

<400> 50926
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aacuuaauau uacaaauugg aaacaugauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaacugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaauuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag gacuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

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<211> 1410

<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggagugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50929
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<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50930
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADI49750

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau auguaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50931
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<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50932
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<212> RNA
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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaccaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu uucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50935
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI50029

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50936
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI52830

<400> 50936
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcc 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cuccccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacaa gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcagag auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuggaacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gaugaguugc cauuuaccau ugacaaguaa 1410

<210> 50937
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI52831

<400> 50937
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcguuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaguauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50938

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI52832

<400> 50938
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaguauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50939
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI52833

<400> 50939
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaagcucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaguauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50940
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI75821

<400> 50940
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agucuaaugu uacaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaacc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuugaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug ggaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 50941
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI75832

<400> 50941
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau auagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaccagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu caaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 50942
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI75854

<400> 50942
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaauacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50943
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI75876

<400> 50943
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcguuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 50944
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI75887

<400> 50944
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacagg 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaga cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 50945
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI75909

<400> 50945
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacuuaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caacucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaagcc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50946
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI75920

<400> 50946
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc acucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa auccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 50947
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI77352

<400> 50947

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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gcgaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc aguaacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 50948
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADI77363

<400> 50948

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50949
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99500

<400> 50949
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50950
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99553

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

gauuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguauuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50951
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99563

<400> 50951
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaagugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50952
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99573

<400> 50952
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaagugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50953
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99583

<400> 50953
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaagugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50954
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99593

<400> 50954
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau uagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50955
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99613

<400> 50955
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50956
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99623

<400> 50956
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaauga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuuuaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauuaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50957
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99633

<400> 50957
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uucgagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50958
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50959
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADI99653

<400> 50959
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga agaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50960
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADI99663

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug ucaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaguauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50961
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99673

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50962
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99683

<400> 50962
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga agaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50963
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99703

<400> 50963
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50964
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99713

<400> 50964
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50965
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99723

<400> 50965
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50966
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADI99733

<400> 50966
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggcccugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50967
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ00487

<400> 50967
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggacccag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50968
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ00488

<400> 50968
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggacccag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50969
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ00489

<400> 50969
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggacccag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50970
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ00490

<400> 50970
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggacccag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50971
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ00491

<400> 50971
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggacccag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50972
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADJ18160

<400> 50972
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg cauaaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaauaa 1410

<210> 50973
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ18161

<400> 50973
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aacuuaauau uacaaauugg aaauauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacguaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaauaa 1410

<210> 50974
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ18162

<400> 50974
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aaggaaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaauaa 1410

<210> 50975
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ18164

<400> 50975
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcucug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaauaa 1410

<210> 50976
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ18166

<400> 50976
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50977
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ18168

<400> 50977
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaauaa 1410

<210> 50978
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ18170

<400> 50978
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aacuuaauau uacaaauugg aaauauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacguaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga gaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50979
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ18172

<400> 50979
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aacuuaauau uacgaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uaacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

agaaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaauaa 1410

<210> 50980
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADJ18174

<400> 50980
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacuuaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50981
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ18176

<400> 50981
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccucuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

ugggugaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca auaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcuu 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacuauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50982
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ37250

<400> 50982
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcacuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaagucg cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 50983
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADJ37252

<400> 50983
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cauaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 50984
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ37263

<400> 50984
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50985
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ37273

<400> 50985
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50986
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADJ40447

<400> 50986
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu aaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50987
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ40457

<400> 50987
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50988
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADJ40467

<400> 50988
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50989
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ40477

<400> 50989
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacuaugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguag 1410

<210> 50990
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ40487

<400> 50990
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugggguc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu ugaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50991
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADJ40507

<400> 50991

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggagcuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50992

<211> 1410
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<220>
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neuraminidase__InfluenzaA__ADJ40517

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50993
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<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggagcuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50994
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaggg 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauau aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50995
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ40547

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauaa ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuuuggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50996
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADJ40557

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggagcuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50997
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADJ40577

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 50998
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADJ40597

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cuuaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51000
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<220>
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neuraminidase__InfluenzaA__ADJ40607

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccaucaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51001
<211> 1410
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<400> 51001

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccaucaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51002
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADJ40627

<400> 51002
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51003
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ40637

<400> 51003
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51004
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ40657

<400> 51004
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51005
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ40667

<400> 51005
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51006
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ40677

<400> 51006
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51007
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ41819

<400> 51007
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaauau 120

gagugcagcu cccccccaaa caaccaagua gugccgugug aaccaauaau aauagaaaga 180

aacauaacag agauagugua uuugacuaac accaccauag agaaagagau augccccaaa 240

cuaguggaau acagaaauug gucaaagccg caauguaaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauucg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugcac ucgggcaggg gaccacgcua 420

gacaacaagc auucaaauga cacaauacau gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguugg guguuccauu ucauuuggga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggua ugauaaaaau 600

gcaacugcua gcuucauuua cgaugggagg cuuguagaca guauugguuc augguccaaa 660

aauauccuca ggacccagga gucggaaugc guuuguauca augggacuug uacaguagua 720

augacugaug gaagugcuuc agaaagagcu gauaccaaaa uacuauucau ugaagagggg 780

aaaaucguuc auauuagccc auugucagga agugcucagc auguagagga guguuccugu 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccgucguag auauaaaugu gaaagauuau agcauuguuu ccaguuaugu gugcucaggg 960

cuuguuggcg acacacccag aaaaaacgac agaucuagca guagcuauug ccggaauccu 1020

aacaaugaga aagggaauca uggagugaaa ggcugggccu uugacgaugg aaaugacgug 1080

uggaugggaa gaacaaucag cgaggaguca cgcucagguu augaaaccuu caaagucauu 1140

gguggguuggu ccacacccaa uuccaaauug cagauaaaua ggcaagucau aguugacagc 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaaa cuagagucug guggaccuca 1320

aacagcauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggagcggaca ucaaucucau gccuauauaa 1410

<210> 51008
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ56642

<400> 51008
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51009
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ56652

<400> 51009
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51010
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80637

<400> 51010
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51011
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80647

<400> 51011
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51012
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80657

<400> 51012
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaaa caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guugguccug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51013
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80667

<400> 51013
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51014
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80677

<400> 51014
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51015
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80687

<400> 51015
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51016
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80697

<400> 51016
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

auuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51017
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80717

<400> 51017
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuguauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51018
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80727

<400> 51018
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug gguuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga ccuaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51019
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80737

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauacagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51020
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADJ80747

<400> 51020
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaagg 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uagaaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51021
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADJ80757

<400> 51021
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggguuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51022
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80767

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu acagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51023
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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<400> 51023
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccugaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51024
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80787

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51025
<211> 1410
<212> RNA
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<220>
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<400> 51025
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaauaaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu agaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51026
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADJ80807

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaaa caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guugguccug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51027
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80817

<400> 51027
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgggucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51028
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80827

<400> 51028
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51029
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80837

<400> 51029
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacgcugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51030
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80851

<400> 51030
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacuguga guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51031
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80861

<400> 51031
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgccu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uagguauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaauuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51032
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80871

<400> 51032
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaauaaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacugacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51033
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80886

<400> 51033
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauuu ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guguguaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51034
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADJ80896

<400> 51034
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51035
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80913

<400> 51035
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau guuccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaagcggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51036
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80930

<400> 51036
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51037
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80950

<400> 51037
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51038
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80960

<400> 51038
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51039
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80970

<400> 51039
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaauaaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51040
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80980

<400> 51040
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauag uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51041
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ80996

<400> 51041
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaauaaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacugacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51042
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ81006

<400> 51042
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aauuuaauau uacaaguugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcacuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51043
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ81016

<400> 51043
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacuguga guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51044
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ81026

<400> 51044
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

gauuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguauuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51045
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADJ81036

<400> 51045

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu agaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51046

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ81046

<400> 51046
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacagu uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc uauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51047
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ81056

<400> 51047
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caguuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51048
<211> 1410
<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADJ81066

<400> 51048
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aacuuaauau uacagauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aauucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51049
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<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADJ84775

<400> 51049
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51050
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADJ88785

<400> 51050
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcguuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51051
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21716

<400> 51051
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51052
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21726

<400> 51052
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51053
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21736

<400> 51053
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51054
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21746

<400> 51054
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga acacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaagcggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccgaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51055
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK21756

<400> 51055

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51056
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK21766

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug ugaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaccaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51057
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21776

<400> 51057
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauagcuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51058
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21786

<400> 51058
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51059
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21796

<400> 51059
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucauuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51060
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21806

<400> 51060
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

ugggugaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51061
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21816

<400> 51061
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccuca cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51062
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21826

<400> 51062
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccgcga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggagg 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51063
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21836

<400> 51063
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacugau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51064
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21846

<400> 51064
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaaugaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug ggcuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51065
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21856

<400> 51065
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuuacua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucaacaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51066
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21866

<400> 51066
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguauuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauuggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51067
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK21876

<400> 51067
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuggaacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51068
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21886

<400> 51068
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aauucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51069
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21896

<400> 51069
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaauuug gacuagcggg 1320

agcagcauau ccuuuugugg uguaagcagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51070
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21906

<400> 51070
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccgugga uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauugguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg gguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51071
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21916

<400> 51071
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51072
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21926

<400> 51072
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51073
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21936

<400> 51073
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51074
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21946

<400> 51074
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggauggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51075
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK21956

<400> 51075
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu aacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51076
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32393

<400> 51076
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51077
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32403

<400> 51077
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51078
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32413

<400> 51078
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51079
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32423

<400> 51079
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51080
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32433

<400> 51080
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51081
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK32443

<400> 51081
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcaauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuagauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51082
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32453

<400> 51082
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaucggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51083
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32463

<400> 51083
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugaua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51084
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32473

<400> 51084
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51085
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32483

<400> 51085
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacaa gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51086
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32493

<400> 51086
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51087
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32505

<400> 51087
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51088
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADK32640

<400> 51088
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

gccuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51089
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32650

<400> 51089
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51090
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32660

<400> 51090
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugaugggcag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51091
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32670

<400> 51091
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuacuau ugacaaguaa 1410

<210> 51092
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32680

<400> 51092
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauaa aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51093
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32690

<400> 51093
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51094
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32700

<400> 51094
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcuccccuuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg uccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51095
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK32779

<400> 51095
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauau aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51096
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33614

<400> 51096
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51097
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33624

<400> 51097
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccggacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuacuau ugacaaguaa 1410

<210> 51098
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33634

<400> 51098
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ugccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51099
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK33644

<400> 51099

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cucagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51100

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33654

<400> 51100
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugua uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaauuug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51101
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33664

<400> 51101
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugua uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaauuug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51102
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33674

<400> 51102
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51103
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33684

<400> 51103
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaauu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugacgg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg gaaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51104
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33694

<400> 51104
augaauccaa accaaaagau aauaaucauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51105
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33704

<400> 51105
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51106
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33714

<400> 51106
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cuuugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51107
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33744

<400> 51107
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauau 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51108
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33754

<400> 51108
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuucauac uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaacaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51109
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK33764

<400> 51109

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aacuucauac uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga ugggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaacaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51110
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK33774

<400> 51110
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga ugggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51111
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33784

<400> 51111
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51112
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33794

<400> 51112
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggagu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaauaa 1410

<210> 51113
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33804

<400> 51113
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51114
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33814

<400> 51114
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaaua agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga ugggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51115
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33824

<400> 51115
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauauau uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51116
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33834

<400> 51116
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucaacaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51117
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33844

<400> 51117
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccgcga aauuagcggg caauucccu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51118
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33854

<400> 51118
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51119
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33864

<400> 51119
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauagga 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacugau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51120
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33874

<400> 51120
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggacg uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacuu augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51121
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK33884

<400> 51121
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagucacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugccccg uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51122
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33894

<400> 51122
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc aaacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucguaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauauug uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51123
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33904

<400> 51123
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51124
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33914

<400> 51124
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguaa aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51125
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33924

<400> 51125
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu aacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51126
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33934

<400> 51126
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggacg uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51127
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33944

<400> 51127
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51128
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33954

<400> 51128
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaua agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguaa aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugaaauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagacca 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51129
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33964

<400> 51129
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51130
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33974

<400> 51130
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucauuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51131
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK33984

<400> 51131
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51132
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK39016

<400> 51132
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaguugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc ggacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauucaccau ugacaaguaa 1410

<210> 51133
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK45315

<400> 51133
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51134
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK45413

<400> 51134
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcuguaug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugcuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51135
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK45424

<400> 51135
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51136
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK45446

<400> 51136
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacagg 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaga cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51137
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK45457

<400> 51137
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc ccuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccggca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51138
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK45479

<400> 51138
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcucuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaagucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaag cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51139
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK48799

<400> 51139
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51140
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK62686

<400> 51140
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51141
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK62696

<400> 51141
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguaa aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucguca 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51142
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADK64994

<400> 51142
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51143
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK65002

<400> 51143
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaccgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuggguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51144
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK65010

<400> 51144
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51145
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK65018

<400> 51145
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuuggcca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

auaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucaau cgaaaugaau gccccuaauu aucacuauga ggaaugcuca 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51146
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87290

<400> 51146
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauac 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu uauacuaaaa uauuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuguauaa 1410

<210> 51147
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87292

<400> 51147
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cacugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguugucuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg guccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugc guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaacug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuguauaa 1410

<210> 51148
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87294

<400> 51148
augaauccaa aucaaaagau aauagcgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuucc ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc gcgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca cugggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaauauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuguauaa 1410

<210> 51149
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87297

<400> 51149
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa aacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51150
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87299

<400> 51150
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauuca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51151
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87301

<400> 51151
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagca 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51152
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87303

<400> 51152
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaauccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51153
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK87305

<400> 51153

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccu caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguuggcaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuguauaa 1410

<210> 51154

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87307

<400> 51154
augaauccaa aucaaaaggu aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguuggcaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau agggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuguauag 1410

<210> 51155
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87312

<400> 51155
augaauccaa accaaacgau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuugauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

auuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaauauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51156
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87314

<400> 51156
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaagga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau gugccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggaggga 780

aaaaucguuc auacuagcac aucgucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgaaaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuguauaa 1410

<210> 51157
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87316

<400> 51157
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacacuaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaaauaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51158
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87318

<400> 51158
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucguaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuccuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcacau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51159
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87320

<400> 51159
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguacauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51160
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87324

<400> 51160
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuuccuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaag 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccugg caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc cgguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuguauaa 1410

<210> 51161
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87327

<400> 51161
augaauccaa aucaaaagau aaugacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguggua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggaggga 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagagguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacagcauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuguauaa 1410

<210> 51162
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87329

<400> 51162
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcgagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51163
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK87330

<400> 51163

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug ggcuagcggg 1320

agcagcauau ccuuuugcgg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51164
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK87331

<400> 51164
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacugau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51165
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87332

<400> 51165
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa gcacaacggc auaauaacag acacuaucaa gaguuggaga 660

aauaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggaa guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51166
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87333

<400> 51166
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aauaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuaucccu auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggaa guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51167
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK87335

<400> 51167
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug agccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caggcguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucagauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga aaugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau agucgacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51168
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87337

<400> 51168
augaauccaa aucaaaagau aauaacgauu gguucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug agccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cgcaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga aaugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51169
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK87339

<400> 51169
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aauuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagcgcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggua guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51170
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90209

<400> 51170
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51171
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90213

<400> 51171
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51172
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90217

<400> 51172
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51173
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90221

<400> 51173
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

gggaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51174
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90225

<400> 51174
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

gggaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51175
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90229

<400> 51175
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggagugaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51176
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90233

<400> 51176
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51177
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90241

<400> 51177
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacc 180

uggguaaauc agacauaugu uaacaucagc aacgccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51178
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90245

<400> 51178
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

gggaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg gaaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51179
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90249

<400> 51179
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agaaucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa augggguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaaugaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51180
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90253

<400> 51180
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agaaucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa augggguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaaugaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51181
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90257

<400> 51181
augaauccaa accaaaagau aauaaucauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

gggaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51182
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90261

<400> 51182
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51183
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90265

<400> 51183
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga ugggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51184
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90269

<400> 51184
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aaaaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucaau cgaaaugaau gccccccaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugagcuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51185
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90273

<400> 51185
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51186
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90277

<400> 51186
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51187
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90281

<400> 51187
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51188
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90289

<400> 51188
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucugauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucuucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaauaug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51189
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90293

<400> 51189
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccuag ugauggacag gccucauaca agaucuucag aauagaaaag 780

gggaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51190
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90297

<400> 51190
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcuccccauu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51191
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90301

<400> 51191
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uguccuucaa ccagaaucug gaauaucaga uaggauauau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51192
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90305

<400> 51192
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccauu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51193
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90309

<400> 51193
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51194
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90313

<400> 51194
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51195
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90317

<400> 51195
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacug 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaacu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51196
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADK90321

<400> 51196
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau cggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51197
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90325

<400> 51197
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugagguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51198
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90329

<400> 51198
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau cgaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

gaggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51199
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90333

<400> 51199
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaauaaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg agccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51200
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90337

<400> 51200
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51201
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90341

<400> 51201
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucc 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51202
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90345

<400> 51202
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucc 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51203
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADK90349

<400> 51203
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucc 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51204
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90353

<400> 51204
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51205
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90357

<400> 51205
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucaaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51206
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90361

<400> 51206
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51207
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK90365

<400> 51207

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51208

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90369

<400> 51208
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51209
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90373

<400> 51209
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga acauucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51210
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90377

<400> 51210
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau cggaaugacu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaauggau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucauaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51211
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90381

<400> 51211
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cuccccauau aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51212
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90385

<400> 51212
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaucggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aaaggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa uguacaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51213
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90389

<400> 51213
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51214
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90393

<400> 51214
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggagaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51215
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90397

<400> 51215
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcuga acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccauu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51216
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90401

<400> 51216
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggagugaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51217
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK90405

<400> 51217

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa uguacaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51218
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK90409

<400> 51218
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51219
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90413

<400> 51219
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuaccuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cacaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcaaugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu accacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51220
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90417

<400> 51220
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccgaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51221
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90421

<400> 51221
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugagguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaua agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51222
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90425

<400> 51222
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51223
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK90429

<400> 51223
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51224
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94194

<400> 51224
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc ccuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51225
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94205

<400> 51225
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcugaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51226
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94216

<400> 51226
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51227
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94227

<400> 51227
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51228
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK94238

<400> 51228
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51229
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94260

<400> 51229
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51230
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94271

<400> 51230
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51231
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94293

<400> 51231
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51232
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94304

<400> 51232
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51233
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94326

<400> 51233
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacauac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51234
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94337

<400> 51234
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51235
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94444

<400> 51235
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc ccuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51236
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94479

<400> 51236
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuuccuca ugcaaauugc cauccugaca acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaac aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguucccuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cuggagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51237
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94490

<400> 51237
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51238
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94501

<400> 51238
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51239
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94512

<400> 51239
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

agaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51240
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94534

<400> 51240
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau aguauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51241
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94556

<400> 51241
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51242
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94567

<400> 51242
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau aguauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51243
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK94578

<400> 51243
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug agccaacaau aauagaaaga 180

aacauaacag agauaguuua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51244
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK94589

<400> 51244
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu cugguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51245
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98504

<400> 51245
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagu 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugaucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51246
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98506

<400> 51246
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaaacguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51247
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98626

<400> 51247
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau gauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51248
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98637

<400> 51248
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauuaaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51249
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98648

<400> 51249
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugggucg uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51250
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADK98659

<400> 51250
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau auagaaauug gucaaaaccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaccagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guggccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu caaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51251
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98670

<400> 51251
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51252
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98681

<400> 51252
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ugcuucuuca ugcagauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aagaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguugggg acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51253
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98703

<400> 51253
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ugcuucuuca ugcagacugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aagaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguugggg acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagacaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaaacug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51254
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98725

<400> 51254
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51255
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98736

<400> 51255
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51256
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98747

<400> 51256
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau gaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51257
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98758

<400> 51257
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu aauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaggg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc uggcauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51258
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98769

<400> 51258
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51259
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98780

<400> 51259
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcguuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51260
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98791

<400> 51260
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51261
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK98802

<400> 51261

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51262

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98813

<400> 51262
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugagcuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51263
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98824

<400> 51263
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51264
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98835

<400> 51264
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51265
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98846

<400> 51265
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51266
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98857

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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuu ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51267
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98868

<400> 51267
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug ucuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa augaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51268
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98879

<400> 51268
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagcg augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51269
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98890

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51270
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98901

<400> 51270
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51271
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98912

<400> 51271

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucuggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcguuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51272
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK98923

<400> 51272
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga augcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51273
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98945

<400> 51273
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacguaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51274
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98956

<400> 51274
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcguuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaagcgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51275
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98967

<400> 51275
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51276
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98978

<400> 51276
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51277
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK98989

<400> 51277
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcguuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaagcgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51278
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99000

<400> 51278
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucgaac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51279
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99011

<400> 51279
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcguuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaagcgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51280
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99022

<400> 51280
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ugcuucuuca ugcaaauugc caucuuggua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug acccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51281
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99033

<400> 51281
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggagau augccccaaa 240

cuagcagaau acagaaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug cacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaccau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51282
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADK99044

<400> 51282
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacaaaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaacuuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51283
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99055

<400> 51283
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau gaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51284
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99066

<400> 51284
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaaugu 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaagaaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51285
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99077

<400> 51285
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcucuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaagucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51286
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99088

<400> 51286
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcguuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51287
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99099

<400> 51287
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51288
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99110

<400> 51288
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51289
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99121

<400> 51289
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51290
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99132

<400> 51290
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccguag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51291
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99143

<400> 51291
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51292
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99154

<400> 51292
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51293
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99176

<400> 51293
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccucaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51294
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99187

<400> 51294
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcucuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaagucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51295
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99198

<400> 51295
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51296
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99220

<400> 51296
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51297
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99231

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caauuguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51298
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99242

<400> 51298
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggga gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaagguuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauua uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51299
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99253

<400> 51299
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcuuggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggcau uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

ggucauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucacucucau gccuauauaa 1410

<210> 51300
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99264

<400> 51300
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cauauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51301
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99275

<400> 51301
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ugcuucuuua ugcaaauugc cgucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcaggau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag uaugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuuuauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucaa cgagacguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51302
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99286

<400> 51302
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc ccccccaaa caaccaagug acgccgcgug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacauac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51303
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADK99297

<400> 51303
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ugcuucuuca ugcaaaccgc cauccugaua acuacuguaa cauugcauuu caagcaaugu 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51304
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADK99308

<400> 51304
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guauuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagucauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51305
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL14590

<400> 51305
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaag 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51306
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL27992

<400> 51306
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51307
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28003

<400> 51307
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51308
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28014

<400> 51308
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ugcuucuuca ugcaaauugc caucuuggua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug acccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51309
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADL28025

<400> 51309
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaagaaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51310
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28036

<400> 51310
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucggu auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51311
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28047

<400> 51311
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga uaaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uauuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51312
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28058

<400> 51312
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuaaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccu caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugagaaguca cgcuuagggu augaaacuuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaaguccu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggauc ucaaucucau gccuauauaa 1410

<210> 51313
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28069

<400> 51313
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51314
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28080

<400> 51314
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugуc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51315
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADL28091

<400> 51315

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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51316

<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28102

<400> 51316
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau auguccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac acugucagga agugcucagc augucgagga gugcuccugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51317
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28113

<400> 51317
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51318
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28129

<400> 51318
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaaaucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51319
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28140

<400> 51319
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcacccuuu 300

ucuaaggaca auucaauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgaugggaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggaag cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaagagggg 780

aaaaucguuc auacuagcac auuaucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa auccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51320
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28151

<400> 51320
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguugg guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51321
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28162

<400> 51321
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51322
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28173

<400> 51322
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaag 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51323
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28184

<400> 51323
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51324
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADL28195

<400> 51324
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc ccuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguguca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucggga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51325
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28206

<400> 51325

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcucuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucuggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc augauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaagucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51326
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADL28217

<400> 51326
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ugcuucuuca ugcaaaccgc cauccugaua acuacuguaa cauugcauuu caagcaaugu 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacgcua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51327
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28228

<400> 51327
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51328
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28239

<400> 51328
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga augcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauc 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51329
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28250

<400> 51329
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacagg 1200

gguaauagau ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaga cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51330
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28261

<400> 51330
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucaac augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuauuu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51331
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28373

<400> 51331
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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaauguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51332
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28387

<400> 51332
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugacg ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51333
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28391

<400> 51333
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagaguaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugacg ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51334
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL28395

<400> 51334
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ugcuuccuua ugcaaauugc cauccuggua acuacuguaa cauugcauuu caagcaguau 120

gaaugcaacu cccccccaaa caaccaagua augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

uuagcagaau acagaaauug gucaaagccg caauguaaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauucg gcuuuccgcu gguggggaca ucugggugac aagaguaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgggc auucaaauga cacaguacau gauaggaccc cuuaccggac ccuauugaug 480

aaugaauugg guguuccauu ucauuuggga accaggcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugug uaacugggga ugaugaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauugguuc augguccaaa 660

aaaauacuca gaacccagga gucggaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagcgcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguua auauuagcac auugucagga agugcucagc augucgagga gugcuccugu 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaaugu aaaggauuau agcauuguuu ccaguuaugu gugcucagga 960

cuuguuggag acacacccag aaaaaacgac agcuucagca guagccauug ccuagauccu 1020

aacaaugagg aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguuu cgcucagguu augaaaccuu caaagucauc 1140

gaaggcuggu ccaaaccuaa cuccaaauua cagauaaaua ggcaagucau aguugaaaga 1200

gguaacaggu ccgguuauuc ugguauuuuc uccguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaaguuug guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaua ucaaucucau gccuauauaa 1410

<210> 51335
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29675

<400> 51335
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51336
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29685

<400> 51336
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51337
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29695

<400> 51337
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51338
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29705

<400> 51338
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51339
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29733

<400> 51339
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacauugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51340
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29743

<400> 51340
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51341
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29753

<400> 51341
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacauugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51342
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29763

<400> 51342
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug ucaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51343
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29773

<400> 51343
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacauugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51344
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29783

<400> 51344
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51345
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL29882

<400> 51345
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacauugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51346
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32020

<400> 51346
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aacuuaauau uacaaauugg aaacauaauc ucaacaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51347
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32030

<400> 51347
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacauugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51348
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32040

<400> 51348
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51349
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32050

<400> 51349
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51350
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32060

<400> 51350
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51351
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32093

<400> 51351
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51352
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32117

<400> 51352
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51353
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32347

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc uucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51354
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32357

<400> 51354
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgccugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccgu ugacaaguaa 1410

<210> 51355
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32367

<400> 51355
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51356
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32377

<400> 51356
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51357
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32387

<400> 51357
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51358
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADL32397

<400> 51358
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg gcagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51359
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32407

<400> 51359
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51360
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32417

<400> 51360
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51361
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32427

<400> 51361
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga aaacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51362
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32447

<400> 51362
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc agugucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51363
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32457

<400> 51363
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca agaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaguugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggcaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51364
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32487

<400> 51364
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51365
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32497

<400> 51365
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggacg uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51366
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32507

<400> 51366
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51367
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32517

<400> 51367
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51368
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32527

<400> 51368
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

gggguauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51369
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADL32537

<400> 51369

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aaaacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51370

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32547

<400> 51370
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

auaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51371
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32673

<400> 51371
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51372
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32683

<400> 51372
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuaccuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggagcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagaggacga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51373
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32693

<400> 51373
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51374
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32703

<400> 51374
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

aggacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51375
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32713

<400> 51375
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51376
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32723

<400> 51376
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guuugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51377
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32733

<400> 51377
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51378
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL32743

<400> 51378
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc uaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51379
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39139

<400> 51379

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugagug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gagaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacugggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgaaga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucga 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51380
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADL39150

<400> 51380
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug aaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucgaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac uauugacaag uag 1413

<210> 51381
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39172

<400> 51381
augaauccaa aucaaaagau aauaacuauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggagaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca ggcacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51382
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39183

<400> 51382
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccuccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccguuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca ucuggguaac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuggggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51383
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39194

<400> 51383
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagua uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51384
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39205

<400> 51384
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51385
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39227

<400> 51385
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau uugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51386
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39238

<400> 51386
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaaau ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51387
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39249

<400> 51387
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggagugaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51388
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39260

<400> 51388
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugca ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gauugaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guauuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51389
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39282

<400> 51389
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccuccaaa caaccaagug augcugugug aaccaacaau aauagaaaaa 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaga 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa caaaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuggggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51390
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADL39293

<400> 51390
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgacccuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

uguuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51391
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39304

<400> 51391
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauuuaacu ucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaag 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auaccagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg gaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51392
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39326

<400> 51392
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguga cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccguuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca ucuggguaac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51393
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39392

<400> 51393
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuagccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51394
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39403

<400> 51394
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51395
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADL39425

<400> 51395
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaaugga auaauaaccg gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

agaaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51396
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39447

<400> 51396
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agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauugaccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51397
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39458

<400> 51397
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccacg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

agaaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51398
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39469

<400> 51398
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agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguuggau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucugugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51399
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39480

<400> 51399
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggguacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagaugg uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51400
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL39491

<400> 51400
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaguucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cauaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa ggacgauaag cgagaaguca cgcuuagggu augaaacuuu caaagucauu 1140

gaaggcuggu ccaauccuaa auccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

agcaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucuuau gccuauauaa 1410

<210> 51401
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL41165

<400> 51401
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51402
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL41175

<400> 51402
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aacuuaauau uacaaauugg aaacauaauc ucaacaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acagcguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51403
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60255

<400> 51403
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauu acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaggggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acgaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51404
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60277

<400> 51404
augaacccaa aucaaaggau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaauu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc auacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgccaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccgcaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuauccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51405
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60288

<400> 51405
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51406
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60299

<400> 51406
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaguauuaac aacacuaaug uuguugcugg aaaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaagacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccccg ucccaaagau ggaaagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51407
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60310

<400> 51407
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg ugcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuucaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccauucac cauugacaag uag 1413

<210> 51408
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60321

<400> 51408
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau ggugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuuccuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51409
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60332

<400> 51409
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccaaagau ggaaggggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51410
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60343

<400> 51410
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacguauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaacaauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uauaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga ucugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggauacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51411
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60354

<400> 51411
augaacccaa aucaaaggau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaauu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc auacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccgcaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51412
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADL60365

<400> 51412
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccucccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau aagccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cauaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ucugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcacuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca ugggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51413
<211> 1413

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADL60376

<400> 51413
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccggaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucggu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cugugcuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccaaagau ggaaagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51414
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM07137

<400> 51414
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51415
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM07146

<400> 51415
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51416
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM07156

<400> 51416
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51417
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM07165

<400> 51417
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51418
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM07474

<400> 51418
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agucuaaugu uacaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuugaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaauag gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug ggaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51419
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM07485

<400> 51419
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcaucag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auuaugacug auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gacuaucaga uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa auggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51420
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM07496

<400> 51420
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aauauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggguu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacguac auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuuuauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg auccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauugucu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugagg aaggugguca uggggugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaauaucau gccuauauaa 1410

<210> 51421
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM07507

<400> 51421
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ugcuucuuua ugcaaaccgc cauccugaua acuacuguaa cauugcauuu caagcaauuu 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccagcaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucuu gcgauccaga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa ccgaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51422
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12820

<400> 51422
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

aaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caaugugaca uuacgggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucgaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucaa cgagacguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51423
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM12831

<400> 51423

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

aaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caaugugaca uuacgggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucgaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucaa cgagacguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51424

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12842

<400> 51424
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

aaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaau accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caaugugaca uuacgggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucgaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucaa cgagacguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51425
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12853

<400> 51425
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

aaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagagaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caaugugaca uuacgggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucgaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucaa cgagacguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51426
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12864

<400> 51426
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaauggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51427
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12874

<400> 51427
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51428
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12884

<400> 51428
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

aucuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauagga 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51429
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12894

<400> 51429
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag uccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51430
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12904

<400> 51430
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51431
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12914

<400> 51431
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

uauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caggauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcgga 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51432
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM12924

<400> 51432
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51433
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12934

<400> 51433

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51434
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM12944

<400> 51434

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51435
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12954

<400> 51435
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51436
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12964

<400> 51436
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51437
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12974

<400> 51437
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagu aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51438
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12984

<400> 51438
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau acgggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucag gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51439
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM12994

<400> 51439
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51440
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13004

<400> 51440
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51441
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13014

<400> 51441
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg uaucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51442
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13034

<400> 51442
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccaucaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca auuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51443
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13044

<400> 51443
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacc 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucc 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51444
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13054

<400> 51444
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccaaacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51445
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM13064

<400> 51445
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51446
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13074

<400> 51446
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uagcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51447
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13084

<400> 51447
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cauuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51448
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13094

<400> 51448
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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccgcga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51449
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13104

<400> 51449
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51450
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13124

<400> 51450
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51451
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13134

<400> 51451
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagu aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagagaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauacau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51452
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13154

<400> 51452
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa agcagauuga aacaugcaau caaagcgucu uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuggaacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51453
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13164

<400> 51453
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccaggaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggccc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51454
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13174

<400> 51454
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51455
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13184

<400> 51455
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51456
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13194

<400> 51456
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucaaauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51457
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13204

<400> 51457
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uuuuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg acaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51458
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13214

<400> 51458
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau caggggggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51459
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13224

<400> 51459
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacug acacuaucag gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguaa aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga ccaaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51460
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13234

<400> 51460
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucggac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51461
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13244

<400> 51461
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagu aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuggaacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51462
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13254

<400> 51462
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51463
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13264

<400> 51463
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51464
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13274

<400> 51464
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51465
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13284

<400> 51465
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucggac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51466
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADM13294

<400> 51466
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgagc ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaauguucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggguacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauagcuu cucaauaaaa caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51467
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13304

<400> 51467
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51468
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13314

<400> 51468
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaaucgg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg acaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51469
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13324

<400> 51469
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuggaacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51470
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13344

<400> 51470
augaauccaa accaaaagau aauaaucauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uucuccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc aaacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cgcaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51471
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13354

<400> 51471
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg gaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gcuccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggaga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51472
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13363

<400> 51472
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51473
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13464

<400> 51473
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggaa ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg gaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51474
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13465

<400> 51474
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau gaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51475
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13466

<400> 51475
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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguccccaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51476
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13467

<400> 51476
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucuucu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51477
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM13468

<400> 51477

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ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51478

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13469

<400> 51478
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagca 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuc 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51479
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13470

<400> 51479
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aauugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51480
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13471

<400> 51480
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gauuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc augguucuca 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

ggugguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51481
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM13472

<400> 51481
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gaucaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51482
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13473

<400> 51482
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gccuauauaa 1410

<210> 51483
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM13474

<400> 51483
augaauccaa aucaaaagau aauaacaauu ggcucugucu cucucaccau ugcaacagua 60

ugcuuccuca ugcagauugc cauccuggua acuacuguaa cauugcauuu uaagcaauau 120

gagugcgacu cccccgcgag caaccaagua augccgugug aaccaauaau aauagaaagg 180

aacauaacag agauagugua uuugaauaac accaccauag agaaagagau augccccaaa 240

guaguggaau acagaaauug gucaaagccg caaugucaaa uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauccg gcuuucugcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgaucaugg caaguguuau caauuugcac ucgggcaggg gaccacacua 420

gacaacaaac auucaaauga cacaauacau gauagaaucc cucaucgaac ccuauuaaug 480

aaugaguugg guguuccauu ucauuuagga accaggcaag uguguauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua ucacugggga ugacaaaaau 600

gcaacugcua gcuucauuua ugacgggagg cuuguggaca guauugguuc auggucucaa 660

aauauccuca gaacccagga gucggaaugc guuuguauca augggacuug cacaguagua 720

augacugaug gaagugcuuc aggaagagcc gauacuagaa uacuauucau ugaagagggg 780

aaaauugucc auauuagccc auugucagga agugcucagc auguagaaga guguuccugu 840

uauccuagau auccuggcgu cagauguauc ugcagagaca acuggaaagg cucuaauagg 900

cccgucguag acauaaauau ggaagauuau agcauugauu ccaguuaugu gugcucaggg 960

cuuguuggcg acacaccuag aaacgacgac agaucuagca auagcaauug caggaauccu 1020

aacaaugaga gagggaauca aggagugaaa ggcugggccu uugacaaugg agaugacgug 1080

uggaugggaa gaacgaucag caaggauuua cgcucagguu augaaacuuu caaagucauu 1140

gguggguuggu ccacaccuaa uuccaaaucg cagaucaaua gacaagucau aguugacagc 1200

gauaaucggu cagguuacuc ugguauuuuc ucuguugagg gcaaaagcug caucaauagg 1260

ugcuuuuaug uggaguugau aaggggaagg aaacaggaga cuagagugug guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguaccuaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaauuucau gcauauauaa 1410

<210> 51484
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14469

<400> 51484
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguaugag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugcggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaccggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51485
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14479

<400> 51485
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51486
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14499

<400> 51486
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51487
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14518

<400> 51487

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacgcugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51488
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM14527

<400> 51488

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

gccuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaac 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51489
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14537

<400> 51489
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauagcuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggagcuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51490
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14546

<400> 51490
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg uccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51491
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14555

<400> 51491
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucagauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51492
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14573

<400> 51492
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51493
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14582

<400> 51493
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcug 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagacaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguag 1410

<210> 51494
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14591

<400> 51494
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcug 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51495
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14601

<400> 51495
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51496
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14611

<400> 51496
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaucggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

ugcuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51497
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14620

<400> 51497
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51498
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM14629

<400> 51498
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51499
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM14639

<400> 51499
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51500
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14657

<400> 51500
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaagucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51501
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14666

<400> 51501
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucuuaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51502
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14684

<400> 51502
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51503
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14693

<400> 51503
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51504
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14702

<400> 51504
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccacuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaaaauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugc uuggauaggg 1080

agaacuaaaa gcacuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51505
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14711

<400> 51505
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucgggg acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51506
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14720

<400> 51506
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

guuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51507
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14730

<400> 51507
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcauca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuguauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug ugcuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaggg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agaaucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaagcggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51508
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14748

<400> 51508
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg ucagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug ucaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauaugcaga accuucuucu ugacucaagg ggccuugcua 360

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 420

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 480

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 540

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 600

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 660

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 720

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 780

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 840

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 900

auuuucggag acaauccacg cccuaaugau aaaacaggca guuguggucc aguaucgucu 960

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1020

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1080

acugggacag acaacaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1140

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1200

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1260

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gcugaguugc cauuuaccau ugacaaguaa 1350

<210> 51509
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14758

<400> 51509

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaauaaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51510
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM14767

<400> 51510
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaauaaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51511
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14777

<400> 51511
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51512
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14814

<400> 51512
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51513
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM14823

<400> 51513
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51514
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14841

<400> 51514
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaacaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51515
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14859

<400> 51515
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaacaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51516
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14868

<400> 51516
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51517
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM14878

<400> 51517
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaacaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51518
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14887

<400> 51518
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg uccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51519
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14896

<400> 51519
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug ugcuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcaucu ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51520
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14905

<400> 51520
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51521
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM14923

<400> 51521
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuucg uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51522
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14932

<400> 51522
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

gggguauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51523
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14950

<400> 51523
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaccaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaauuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51524
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14959

<400> 51524
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcugaauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51525
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51526
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM14987

<400> 51526
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaacaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51527
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM26787

<400> 51527
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51528
<211> 1410
<212> RNA
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<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM26798

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ugcuucuuca ugcaaauugc caucuuggua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc uugguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gacauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaggaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcgaaca ucaaucucau gccuauauaa 1410

<210> 51529
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM26809

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacagua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguggaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc gucuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcccagc augucgagga gugcucuugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaacuuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaggucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaaguauu guggaccuca 1320

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ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51530
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM26820

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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcaa gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

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cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucaa cgagacguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

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ggggcggauc ucaaucucau gccuauauaa 1410

<210> 51531
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31427

<400> 51531
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agcuuaaugu uacagauugg gaacaugauc ucaauauggg ucagucauuc aauucaaaca 120

gggaaucaac accaagcuga accaaucaga aauacuaauu uucuuacuga gaacgcugug 180

gcuucaguaa cauuagcggg caauucaucu cuuugcccca uuagaggaug ggccguacac 240

aguaaagaca acaguauaag gauuggguсc aagggggaug uguuuguaau uagggagccg 300

uucaucucau gcucccauau ggaaugcagg acuuucuuuu ugacucaggg agccuuacug 360

aaugacaagc auuccaacgg gacugucaaa gacaggagcc cucacagaac acuaaugagu 420

uguccugugg gugaggcucc cuccccauau aacucgaggu uugagucugu ugcuugguca 480

gcaagcgcuu gccaugaugg caucaguugg uugacaauug gaauuucugg uccagacaau 540

ggggcugugg cgguauugaa auacaauggc auaauaacag acacuaucaa gaguuggggg 600

aauaacauac ugaggacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacag auggaccaag uaauggacag gcaucauaua agaucuucaa aauagaaaaa 720

gggaaaguag uuaaaucagu cgaauugaau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug auucuggcga aauaauaugu gugugcaggg acaauuggca uggcucaaau 840

aggccauggg ugucuuucaa ucagaauuug gaguaucaaa uaggauauau uugcaguggg 900

guuuucggag acaauccacg gccaaaugau gggacaggua guuguggucc aauguccccu 960

aacggggcau augggauaaa aggguuuuca uuuaaauacg guaauggugu uuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggu uuugaaauga uuugggaucc aaaugggugg 1080

acuggaacgg acagugaauu uucggugaaa caagauauag uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcauccg gaacugacag gauuagacug cauaagaccu 1200

ugcuucuggg uugaguuaau cagggggcgg ccaaaagaaa gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguaa 1350

<210> 51532
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM31481

<400> 51532
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaag 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51533
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM31491

<400> 51533
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauucuucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51534
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31501

<400> 51534
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51535
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31511

<400> 51535
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aauaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucua gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51536
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31521

<400> 51536
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaagugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51537
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31531

<400> 51537
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aaggaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau cgacaaguaa 1410

<210> 51538
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31541

<400> 51538
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacc 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauuucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acuggaacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

gggguauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51539
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31551

<400> 51539
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu caacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagacaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51540
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31561

<400> 51540
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51541
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31571

<400> 51541
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51542
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31581

<400> 51542
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51543
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31601

<400> 51543
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51544
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31611

<400> 51544
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51545
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31621

<400> 51545
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcuccuccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

agaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51546
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31631

<400> 51546
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagu aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51547
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31641

<400> 51547
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51548
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31651

<400> 51548
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guucccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaggg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51549
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31661

<400> 51549
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aacuuaauau uacaaauugg gaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51550
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31671

<400> 51550
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aacucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccgcga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaauuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51551
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31681

<400> 51551
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagu aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51552
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31691

<400> 51552
augaauccaa accaaaagau acuaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51553
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31701

<400> 51553
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51554
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31711

<400> 51554
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucggac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa auacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51555
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31721

<400> 51555
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagu aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag auacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51556
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31731

<400> 51556
augaauccaa accaaaagau aauaaucauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agaaucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaggauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugc gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccc 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51557
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM31741

<400> 51557
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu aacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51558
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31751

<400> 51558
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca ucacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51559
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31761

<400> 51559
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccauaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaag ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51560
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31771

<400> 51560
augaauccaa accaaaagau acuaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca uuauuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51561
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31801

<400> 51561
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucaac aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucggcucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51562
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31811

<400> 51562
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuugcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc uucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcagag auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaguu cucaauaaag caggauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51563
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31821

<400> 51563
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51564
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADM31831

<400> 51564
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggacg uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51565
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31841

<400> 51565
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggacg uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51566
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31851

<400> 51566
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagacuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaagg 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51567
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31861

<400> 51567
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aauaccaacu uugcugcugg acagucagug 240

guuuccguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uagggauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51568
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31871

<400> 51568
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51569
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31881

<400> 51569
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aacuuaauau uacaaauugg aaacacaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51570
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31891

<400> 51570
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51571
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM31901

<400> 51571
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51572
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31911

<400> 51572
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu ugaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51573
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31921

<400> 51573
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51574
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31931

<400> 51574
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg gccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51575
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM31941

<400> 51575

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51576

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31951

<400> 51576
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51577
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31961

<400> 51577
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51578
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31971

<400> 51578
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuacga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51579
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31981

<400> 51579
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51580
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM31991

<400> 51580
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51581
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32001

<400> 51581
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51582
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32011

<400> 51582
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51583
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32021

<400> 51583
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cguuuaccau ugacaaguaa 1410

<210> 51584
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32031

<400> 51584
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggggaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucaucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51585
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32051

<400> 51585

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuguug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

agaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51586
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM32061

<400> 51586
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51587
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32071

<400> 51587
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51588
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32081

<400> 51588
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51589
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32091

<400> 51589
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc ccuuuaccau ugacaaguaa 1410

<210> 51590
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32101

<400> 51590
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cguuuaccau ugacaaguaa 1410

<210> 51591
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32111

<400> 51591
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51592
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32554

<400> 51592
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacacaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51593
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32564

<400> 51593
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51594
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32574

<400> 51594
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaauuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51595
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32584

<400> 51595
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaggaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51596
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM32594

<400> 51596
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51597
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM32604

<400> 51597
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51598
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32614

<400> 51598
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacgggugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51599
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32624

<400> 51599
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugacggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguuaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51600
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32634

<400> 51600
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggagcuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51601
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32644

<400> 51601
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51602
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32664

<400> 51602
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cguuuaccau ugacaaguaa 1410

<210> 51603
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32674

<400> 51603
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51604
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32684

<400> 51604
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51605
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32694

<400> 51605
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug cauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51606
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32704

<400> 51606
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51607
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32714

<400> 51607
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuguug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaauuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51608
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32724

<400> 51608
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuguug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaauuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51609
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32734

<400> 51609
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cguuuaccau ugacaaguaa 1410

<210> 51610
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32744

<400> 51610
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51611
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32754

<400> 51611
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuguug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaauuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51612
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32764

<400> 51612
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51613
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32774

<400> 51613
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca cuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51614
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32784

<400> 51614
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggggaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucaucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51615
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32794

<400> 51615
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggagugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51616
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32804

<400> 51616
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcagag auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uagaaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51617
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32814

<400> 51617
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagguuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcagcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cggccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51618
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADM32824

<400> 51618
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51619
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32834

<400> 51619
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51620
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32844

<400> 51620
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51621
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32854

<400> 51621
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaauuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51622
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADM32864

<400> 51622
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51623
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADM32874

<400> 51623
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac acuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51624
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32884

<400> 51624
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcuguugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaauu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51625
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32921

<400> 51625
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51626
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32931

<400> 51626
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51627
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32941

<400> 51627
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aacuuaauau uacaaauugg aaacauuauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggagaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auucuaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaauuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51628
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32951

<400> 51628
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucuuaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggacug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51629
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM32960

<400> 51629

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauucuucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccaucaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51630

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32969

<400> 51630
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51631
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32979

<400> 51631
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51632
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32988

<400> 51632
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucgggg acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51633
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM32997

<400> 51633
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51634
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33006

<400> 51634
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauug uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51635
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33015

<400> 51635
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51636
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33025

<400> 51636
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuuacua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

agcaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucaaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg uccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51637
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33042

<400> 51637
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51638
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM33062

<400> 51638
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuucg uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51639
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM33071

<400> 51639

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cuccccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguaa aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacggu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51640
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM33081

<400> 51640
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuucg uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51641
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33091

<400> 51641
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggauaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcgugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag uuaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51642
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33101

<400> 51642
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggauaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcgugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag uuaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51643
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33111

<400> 51643
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggauaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguccc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcgugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag uuaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51644
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM33121

<400> 51644
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51645
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33130

<400> 51645
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51646
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33139

<400> 51646
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51647
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM33149

<400> 51647
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51648
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33159

<400> 51648
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51649
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33169

<400> 51649
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51650
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33179

<400> 51650
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51651
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM33188

<400> 51651
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51652
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33197

<400> 51652
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucucccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51653
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33206

<400> 51653
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51654
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33215

<400> 51654
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51655
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33224

<400> 51655
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51656
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33234

<400> 51656
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51657
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33243

<400> 51657
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51658
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33253

<400> 51658
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51659
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33262

<400> 51659
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccauga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51660
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33272

<400> 51660
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagggggcga cccaaagaga acacaauuug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51661
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33282

<400> 51661
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51662
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33292

<400> 51662
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51663
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33302

<400> 51663
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51664
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33312

<400> 51664
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agaaucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51665
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM33322

<400> 51665
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51666
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33332

<400> 51666
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51667
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33342

<400> 51667
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcagg caauuccucu cucugcccug uuggguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51668
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33367

<400> 51668
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcgucg uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51669
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33377

<400> 51669
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51670
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33387

<400> 51670
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51671
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33397

<400> 51671
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51672
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADM33407

<400> 51672
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51673
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33417

<400> 51673
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uugguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51674
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33427

<400> 51674
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuucuguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51675
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33437

<400> 51675
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucugcauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51676
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM33443

<400> 51676
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu auuacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51677
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52446

<400> 51677
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaauugc cauuuaccau ugacaaguaa 1410

<210> 51678
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52456

<400> 51678
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

ugggugaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51679
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52466

<400> 51679
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51680
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52486

<400> 51680
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51681
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52496

<400> 51681
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51682
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52506

<400> 51682
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51683
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM52516

<400> 51683

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51684

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52527

<400> 51684
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51685
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52537

<400> 51685
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugaggacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51686
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52547

<400> 51686
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuguug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaauuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51687
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52557

<400> 51687
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51688
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52567

<400> 51688
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51689
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52577

<400> 51689
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccaaaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauacagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51690
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52587

<400> 51690
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51691
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52597

<400> 51691
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51692
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52607

<400> 51692
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51693
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52617

<400> 51693

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51694
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM52627

<400> 51694
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51695
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52637

<400> 51695
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugaggacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51696
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52647

<400> 51696
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51697
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52657

<400> 51697
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaaa uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51698
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52667

<400> 51698
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51699
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52687

<400> 51699
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51700
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52697

<400> 51700
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acaccaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51701
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM52707

<400> 51701
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc guaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51702
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM52717

<400> 51702
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagcg 240

guuuccguga aauuaguggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51703
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM86402

<400> 51703
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcc 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

gcuuccguga aauuagcggg caauucuucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccguuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auuccaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucc 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51704
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM86412

<400> 51704
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51705
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM86422

<400> 51705
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacauaagc aacaccaacu uuguugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac cuuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagguag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51706
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM86432

<400> 51706
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaaccgc cauccugaua acuacuguaa cauugcauuu caagcaaugu 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ucuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caauggaagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaauca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugauaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaccgg 1260

ugcuuuuaug uggaguugau aaggggaagg aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51707
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM86443

<400> 51707
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa uguguaugug uaaaugguuc uugcuucacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaaugaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51708
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM86453

<400> 51708
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauucuucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uuucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51709
<211> 1350
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95377

<400> 51709
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agcuuaaugu uacaaguugg gagcaugauc ucaauauggg ucagucauuc aauucacaca 120

gggaaucagc accaagcuga gccaaucagc aauacuaauu uucuuacuga gaaagcugug 180

gcuucaguaa aauuagcggg caauucaucu cuuugcccca uuaacggaug ggcuguauac 240

aguaaggaca acaguauaag gaucgguucc aagggggaug uguuuguuau aagagagccg 300

uucaucucau gcucccacuu ggaaugcaga acuuucuuuu ugacucaggg agccuugcug 360

aaugacaaac acuccaaugg gacugucaaa gacagaagcc cucacagaac auuaaugagu 420

uguccuaugg gugaggcucc cuccccauac aacucaaggu uugagucugu ugcuugguca 480

gcaagugcuu gccaugaugg caccaguugg uugacaauug gaauuucugg cccagacaau 540

ggggcugugg cuguauugaa auacaauggc auaauaacag acacuaucaa gaguuggagg 600

aacaacauac ugagaacuca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 660

guaaugacug auggaccaag uaauggucag gcaucacaua agaucuucaa aauggaaaaa 720

ggaaaaguga uuaaaucagu cgaauuggau gcuccuaauu aucacuauga ggaaugcucc 780

uguuauccug augccggcga aaucacaugu gugugcaggg auaauuggca uggcucaaau 840

cggccauggg uaucuuucaa ucaaaacuug gaguaucaaa uaggauauau augcaguggg 900

guuuucggag acaauccacg ccccaaugau ggaacaggua guuguggucc gguguccucu 960

aacggggcau augggguaaa aggguuuuca uuuaaauacg gcaauggugu cuggaucggg 1020

agaaccaaaa gcacuaauuc caggagcggc uuugaaauga uuugggaucc aaaugggugg 1080

acugaaacgg acaguagauu uucagugaaa caagauaucg uagcaauaac ugauugguca 1140

ggauauagcg ggaguuuugu ccagcaucca gaacugacag gacuagauug cauaagaccu 1200

uguuucuggg uugaguugau cagagggcgg cccaaagaga gcacaauuug gacuaguggg 1260

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gcugaguugc cauucaccau ugacaaguag 1350

<210> 51710
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95650

<400> 51710
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51711
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95651

<400> 51711
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc aaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51712
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95652

<400> 51712
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuugcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca auugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51713
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95654

<400> 51713
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagacacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51714
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95655

<400> 51714
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaac 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuagugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaugacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51715
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95656

<400> 51715

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaauggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51716
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95658

<400> 51716
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagu aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaaguu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51717
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95659

<400> 51717
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaagcggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51718
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95660

<400> 51718
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaacgau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51719
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95661

<400> 51719
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51720
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95662

<400> 51720
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51721
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95663

<400> 51721
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgccugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucaau cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg ugugaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51722
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95664

<400> 51722
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51723
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95665

<400> 51723
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacgggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51724
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95666

<400> 51724
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgccugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucguuu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg ugugaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51725
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95667

<400> 51725
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51726
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95668

<400> 51726
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51727
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95669

<400> 51727
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51728
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADM95670

<400> 51728
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51729
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95672

<400> 51729
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacac aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

gugaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51730
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95673

<400> 51730
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51731
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95674

<400> 51731
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51732
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95675

<400> 51732
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51733
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95677

<400> 51733
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgccugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg ugugaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51734
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95678

<400> 51734
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuugcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51735
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95679

<400> 51735
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgccugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg ugugaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51736
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95680

<400> 51736
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgccugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg ugugaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51737
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95681

<400> 51737
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcgg cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51738
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95682

<400> 51738
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aauaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggagg 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51739
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADM95683

<400> 51739
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aacuuaauau uacaaauugg aaauauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51740
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95684

<400> 51740
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51741
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95685

<400> 51741
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaaguguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagacacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacagucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51742
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95686

<400> 51742
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaugacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51743
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95687

<400> 51743
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca ggagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51744
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95688

<400> 51744
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgccugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacaa ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcaucauau ccuuuugugg ugugaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51745
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95689

<400> 51745
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaugacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51746
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95690

<400> 51746
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca auaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauauca uaggaacaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51747
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95691

<400> 51747
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaaccaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51748
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADM95692

<400> 51748
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucauc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu agaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51749
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95693

<400> 51749
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu agaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51750
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95694

<400> 51750
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aguuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51751
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95695

<400> 51751
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51752
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95696

<400> 51752
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaaugacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51753
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95697

<400> 51753
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaacaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51754
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95698

<400> 51754
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agucugaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcuga agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ccaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuggu cagagggcag ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51755
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95699

<400> 51755
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcuga agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggagugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuug gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucaca 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guauguaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuggu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51756
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95701

<400> 51756
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcuga agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ccaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuggu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51757
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95702

<400> 51757
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg ccagucacuc aauccaaacu 120

ggacgucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaag uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagguga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51758
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95704

<400> 51758
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuguu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacaacacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcuga agaggacaaa 240

acuucaguga cauuggcugg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucaca 720

auaaugaccg auggcccgag uaauagggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaaaguua cuaaaucaau agaguugaau gcacccaauu uucauuauga ggaauguucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg uuucuuuuaa ccaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguucggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug auaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuggu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51759
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95705

<400> 51759

augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg ccagucacuc aauccaaacu 120

ggacgucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaag uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51760

<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95706

<400> 51760
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg ccagucacuc aauccaaacu 120

ggacgucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaag uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51761
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95707

<400> 51761
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg ccagucacuc aauccaaacu 120

ggacgucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaag uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggggu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51762
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95708

<400> 51762
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agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51763
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95710

<400> 51763
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugcuc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau aacauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaugucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51764
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95711

<400> 51764
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51765
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95712

<400> 51765
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauaguaua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51766
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95713

<400> 51766
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51767
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95714

<400> 51767
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa auccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaugucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51768
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95715

<400> 51768
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51769
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95716

<400> 51769

augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucuggggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaugucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51770
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95717

<400> 51770
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc agggaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaugucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca ggcacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51771
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95718

<400> 51771
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51772
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95719

<400> 51772
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cucgcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcucagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gaaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51773
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95720

<400> 51773
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51774
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95721

<400> 51774
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51775
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95723

<400> 51775
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucaauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gacaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuua ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaacgacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51776
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95724

<400> 51776
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaagcuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa uuccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51777
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95725

<400> 51777
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacc ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaagu augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

auaacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa auccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaugucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51778
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95726

<400> 51778
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acugcuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaugucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51779
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95727

<400> 51779
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cacccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccc caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51780
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95728

<400> 51780
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguga cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccgaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

uccaaggaca auucgauuag gcuuuccgcu gguggggaca ucuggguaac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51781
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95729

<400> 51781
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagcc guagccauug uuuggauccu 1020

aacaacgaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51782
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95730

<400> 51782
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaag caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51783
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95732

<400> 51783
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu uaagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcuaugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca ucacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca uuugggugac gagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uugggcaggg aacaacacua 420

aacaacgugc auucaaauga cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guauuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga guguuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca auuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaccgu agcauuguuu ccaguuaugu guguucaggg 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaaccauaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcacuuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51784
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95733

<400> 51784
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ugcuucuuca ugcaaauugc cauauugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gggaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51785
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95734

<400> 51785
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ugcuucuuca ugcaaauugc cauauugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gggaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51786
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95735

<400> 51786
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaaugugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51787
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95736

<400> 51787
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ugcuucuuca ugcaaauugc cauauugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccauuguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gggaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51788
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95737

<400> 51788
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaagagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaugucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51789
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95738

<400> 51789
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaaugugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu auggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51790
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95739

<400> 51790
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51791
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95740

<400> 51791
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacgaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cuaaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51792
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95741

<400> 51792
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaugucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51793
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95742

<400> 51793
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc cauauugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagaugugug ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag ugagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gggaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51794
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADM95743

<400> 51794
augaauccaa aucaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua accacuguaa cauugcauuu caagcaauau 120

gaauucaacu ccuccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggа ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgagga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51795
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADM95744

<400> 51795
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ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

gaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaagccg caaugugaca uuacaggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucaaguuguc acgauggaaa agcauggcug cauguuugua uaacgggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauccuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug ggagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaaucguuc auacuagcac auugucagga agugcucagc augucgaaga gugcuccugc 840

uauccucgau auccuggugu cagauguguc ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacgaucag cgagaaguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugagg gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau aaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauacg gaacaggcuc auggccugau 1380

ggggcggaca ucaaucucau gccuauauaa 1410

<210> 51796
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN05229

<400> 51796
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuacccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51797
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN06292

<400> 51797
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51798
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN06303

<400> 51798
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgccu gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagca gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

gggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51799
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN06314

<400> 51799
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gggagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acaucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagagg uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacggg auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaac gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag auacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugacuguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauaggg 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau ggugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51800
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN06325

<400> 51800
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaguauuauu ucaauauggg cuagucacuc aauccaaacu 120

ggaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acgucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugua ugaacggguc auguuucacc 720

auaaugaccg auggcccgag uaauaaagcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaauuug gauuaucaaa uaggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca guugcaaucc agugacugua 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uggcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaauugacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuagu cagagggcua ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac cauugacaag uag 1413

<210> 51801
<211> 1413
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN06347

<400> 51801
augaacccaa aucaaaagau aauaaccauu ggaucaauca guauagcaau cggaauaauu 60

agucuaaugu ugcaaauagg aaauauuauu ucaauauggg cuagucacuc aauccaaacu 120

gaaagucaaa acaacacugg aauaugcaac caaagaauca ucacauauga aaacagcacc 180

ugggugaauc acacauaugu uaauauuaac aacacuaaug uuguugcugg agaggacaaa 240

acuucaguga cauuggccgg caauucaucu cuuuguucua ucaguggaug ggcuauauac 300

acaaaagaca acagcauaag aauuggcucc aaaggagaug uuuuugucau aagagaaccu 360

uucauaucau guucucacuu ggaaugcaga accuuuuuuc ugacccaagg cgcucuauua 420

aaugacaaac auucaaaugg gaccguaaag gacagaaguc cuuauagggc cuuaaugagc 480

uguccucuag gugaagcucc gucccccauac aauucaaagu ucgaaucagu ugcaugguca 540

gcaagcgcau gccaugaugg caugggcugg uuaacaaucg gaauuucugg uccagacaau 600

ggagcugugg cuguacuaaa auacaacgga auaauaacug gaaccauaaa aaguuggaaa 660

aagcaaauau uaagaacaca agagucugaa ugugucugca ugaacggguc auguuucacu 720

auaaugaccg auggcccgag uaauaaggcc gccucguaca aaauuuucaa gaucgaaaag 780

gggaagguua cuaaaucaau agaguugaau gcacccaauu uuuauuauga ggaaugcucc 840

uguuacccag acacuggcau agugaugugu guaugcaggg acaacuggca ugguucaaau 900

cgaccuuggg ugucuuuuaa ucaaaacuug gauuaccaaa ugggauacau cugcagugga 960

guguuuggug acaauccgcg ucccgaagau ggagagggca gcugcaaucc agugaauguu 1020

gauggagcaa acggaguaaa aggguuuuca uacaaauaug guaauggugu uuggauagga 1080

aggaccaaaa guaacagacu uagaaagggg uuugagauga uuugggaucc uaauggaugg 1140

acaaauaccg acagugauuu cucagugaaa caggauguug uagcaauaac ugauugguca 1200

ggguacagcg gaaguuucgu ccaacauccu gaguuaacag gauuggacug uauaagaccu 1260

ugcuucuggg uugaguuggu cagagggcug ccuagagaaa auacaacaau cuggacuagu 1320

gggagcagca uuucuuuuug uggcguuaau agugauacug caaacugguc uuggccagac 1380

ggugcugagu ugccguucac caucgacaag uag 1413

<210> 51802
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADN06369

<400> 51802
augaauccaa accaaaagau aauaacgauu ggcucuguuu cucucaccau uuccacaaua 60

ugcuucuuca ugcaaauugc caucuugaua acuacuguaa cauugcauuu caagcaauau 120

aaauucaacu cccccccaaa caaccaagug augcugugug aaccaacaau aauagaaaga 180

aacauaacag agauagugua ucugaccaac accaccauag agaaggaaau augccccaaa 240

cuagcagaau acagaaauug gucaaaaccg caaugugaca uuacgggauu ugcaccuuuu 300

ucuaaggaca auucgauuag gcuuuccgcu gguggggaca ucugggugac aagagaaccu 360

uaugugucau gcgauccuga caaguguuau caauuugccc uuggacaggg aacaacacua 420

aacaacgugc auucaaauaa cacaguacgu gauaggaccc cuuaucggac ccuauugaug 480

aaugaguuag guguuccuuu ucaucugggg accaagcaag ugugcauagc augguccagc 540

ucgaguuguc acgauggaaa agcauggcug cauguuugua uaacggggga ugauaaaaau 600

gcaacugcua gcuucauuua caaugggagg cuuguagaua guguuguuuc augguccaaa 660

gaaauucuca ggacccagga gucagaaugc guuuguauca auggaacuug uacaguagua 720

augacugaug gaagugcuuc aggaaaagcu gauacuaaaa uacuauucau ugaggagggg 780

aaaauuguuc auacuagcac auugucagga agugcucagc augucgagga gugcucuugc 840

uauccucgau auccuggugu cagaugugcu ugcagagaca acuggaaagg cuccaauagg 900

cccaucguag auauaaacau aaaggaucau agcauuguuu ccaguuaugu guguucagga 960

cuuguuggag acacacccag aaaaaacgac agcuccagca guagccauug uuuggauccu 1020

aacaaugaag aaggugguca uggagugaaa ggcugggccu uugaugaugg aaaugacgug 1080

uggaugggaa gaacaaucaa cgagacguca cgcuuagggu augaaaccuu caaagucauu 1140

gaaggcuggu ccaacccuaa guccaaauug cagauaaaua ggcaagucau aguugacaga 1200

gguaauaggu ccgguuauuc ugguauuuuc ucuguugaag gcaaaagcug caucaaucgg 1260

ugcuuuuaug uggaguugau uaggggaaga aaagaggaaa cugaagucuu guggaccuca 1320

aacaguauug uuguguuuug uggcaccuca gguacauaug gaacaggcuc auggccugau 1380

ggggcggacc ucaaucucau gccuauauaa 1410

<210> 51803
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26031

<400> 51803
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51804
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26032

<400> 51804
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51805
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26033

<400> 51805
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51806
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26034

<400> 51806
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca aaaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51807
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26035

<400> 51807
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51808
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26036

<400> 51808
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51809
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26037

<400> 51809
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggccauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuauugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51810
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26038

<400> 51810
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51811
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26041

<400> 51811
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuauaaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51812
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26042

<400> 51812
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuuuu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51813
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26043

<400> 51813

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucagg uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51814

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26044

<400> 51814
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51815
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26045

<400> 51815
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51816
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26047

<400> 51816
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucaaug 240

guuuccguga aauuaacggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cuuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51817
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26048

<400> 51817
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51818
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26049

<400> 51818
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51819
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26050

<400> 51819
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucu 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51820
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26051

<400> 51820
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuuuu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51821
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26052

<400> 51821
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51822
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26053

<400> 51822
augaauccaa accaaaagau aauaaccauu gguucggucu gcaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg gaaguuuugu ucagcauccg gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuaguggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51823
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26054

<400> 51823

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51824
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26057

<400> 51824
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51825
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26058

<400> 51825
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51826
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26059

<400> 51826
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51827
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26060

<400> 51827
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguguaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag uaauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucugguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51828
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26061

<400> 51828
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51829
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26063

<400> 51829
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacacuaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51830
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26064

<400> 51830
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51831
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26065

<400> 51831
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggauaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca ugguucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51832
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26066

<400> 51832
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51833
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26067

<400> 51833
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccugacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51834
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26069

<400> 51834
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccugacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51835
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26070

<400> 51835
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51836
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26072

<400> 51836
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acaaucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauau aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaauggcuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51837
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26073

<400> 51837
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51838
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26075

<400> 51838
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51839
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26076

<400> 51839
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51840
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26077

<400> 51840
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51841
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26078

<400> 51841
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51842
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26079

<400> 51842
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuuacua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51843
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26080

<400> 51843
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51844
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26081

<400> 51844
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51845
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26082

<400> 51845
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51846
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26083

<400> 51846
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

ggaaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51847
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26084

<400> 51847
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51848
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26085

<400> 51848
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51849
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26086

<400> 51849
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aauugguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51850
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26087

<400> 51850
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51851
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26088

<400> 51851
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51852
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26090

<400> 51852
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ucagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51853
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26091

<400> 51853
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaacauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51854
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26092

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51855
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26093

<400> 51855
augaauccaa accaaaagau aauaaccauu gguucagucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51856
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from

neuraminidase__InfluenzaA__ADN26094

<400> 51856
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggaaag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51857
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26095

<400> 51857
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51858
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26096

<400> 51858
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa acauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51859
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26097

<400> 51859
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aauaccaacu uugcugcugg acagucagug 240

guuuccguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug ugaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uagggauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51860
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26098

<400> 51860
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51861
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26099

<400> 51861
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51862
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26100

<400> 51862
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51863
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26101

<400> 51863
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51864
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26102

<400> 51864
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuu aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acucaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51865
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26103

<400> 51865
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu ugcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51866
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26104

<400> 51866
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51867
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>

<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26105

<400> 51867

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51868

<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26106

<400> 51868
augaauccaa accaaaagau aauaaccauu gguucagucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51869
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26107

<400> 51869
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51870
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26108

<400> 51870
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51871
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26109

<400> 51871
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51872
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26110

<400> 51872
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51873
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26111

<400> 51873
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51874
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26112

<400> 51874
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51875
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26113

<400> 51875
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51876
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26114

<400> 51876
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucaac aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51877
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26115

<400> 51877

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51878
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26116

<400> 51878

augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc agugucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacaa ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51879
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26117

<400> 51879
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ucuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cauuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51880
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26118

<400> 51880
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51881
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26119

<400> 51881
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51882
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26120

<400> 51882
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51883
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26121

<400> 51883
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51884
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26122

<400> 51884
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51885
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26123

<400> 51885
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51886
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26124

<400> 51886
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51887
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26125

<400> 51887
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51888
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26126

<400> 51888
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51889
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26127

<400> 51889
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauugg aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu ugcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51890
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26128

<400> 51890
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51891
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26129

<400> 51891
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51892
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26130

<400> 51892
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51893
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26131

<400> 51893
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa accagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagaaaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau cccuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51894
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26132

<400> 51894
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51895
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26134

<400> 51895
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51896
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26135

<400> 51896
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51897
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26136

<400> 51897
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaauaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51898
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26137

<400> 51898
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aauaccaacu uugcugcugg acagucagug 240

guuuccguga aauuggcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg cauaaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu guaugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uagggauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51899
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26138

<400> 51899
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugac aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51900
<211> 1410
<212> RNA

<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26140

<400> 51900
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51901
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26141

<400> 51901
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucggauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51902
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26142

<400> 51902
augaauccaa accaaaagau aauaaccauu gguucggucu guaugacaau uggaauggcu 60

aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaacaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa acggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51903
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from neuraminidase__InfluenzaA__ADN26143

<400> 51903
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaugugguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51904
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
<223> derived and/or modified CDS sequence (wt) from
neuraminidase__InfluenzaA__ADN26144

<400> 51904
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51905
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADN26145

<400> 51905
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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

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gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51906
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADN26146

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uuguuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51907
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADN26147

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51908
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<212> RNA
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<220>
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neuraminidase__InfluenzaA__ADN26148

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51909
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADN26149

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggagcca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucaa aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guugugguсc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaauggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51910
<211> 1410
<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADN26150

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agcuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccacuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaguggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg ugucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugaguggguca 1200

ggauauagcg ggaguuuugu ccagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccagacggu 1380

gcugaguugc cauuuaccau ugacaaguaa 1410

<210> 51911
<211> 1410

<212> RNA
<213> Artificial Sequence

<220>
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neuraminidase__InfluenzaA__ADN26151

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aacuuaauau uacaaauugg aaacauaauc ucaauaugga uuagccauuc aauucaacuu 120

gggaaucaaa aucagauuga aacaugcaau caaagcguca uuacuuauga aaacaacacu 180

uggguaaauc agacauaugu uaacaucagc aacaccaacu uugcugcugg acagucagug 240

guuuccguga aauuagcggg caauuccucu cucugcccug uuaauggaug ggcuauauac 300

aguaaagaca acaguauaag aaucgguucc aagggggaug uguuugucau aagggaacca 360

uucauaucau gcucccccuu ggaaugcaga accuucuucu ugacucaagg ggccuugcua 420

aaugacaaac auuccaaugg aaccauuaaa gacaggagcc cauaucgaac ccuaaugagc 480

uguccuauug gugaaguucc cucuccauac aacucaagau uugagucagu cgcuugguca 540

gcaagugcuu gucaugaugg caucaauugg cuaacaauug gaauuucugg cccagacaau 600

ggggcagugg cuguguuaaa guacaacggc auaauaacag acacuaucaa gaguuggaga 660

aacaauauau ugagaacaca agagucugaa ugugcaugug uaaaugguuc uugcuuuacu 720

guaaugaccg auggaccaag ugauggacag gccucauaca agaucuucag aauagaaaag 780

ggaaagauag ucaaaucagu cgaaaugaau gccccuaauu aucacuauga ggaaugcucc 840

uguuauccug auucuaguga aaucacaugu gugugcaggg auaacuggca uggcucgaau 900

cgaccguggg uaucuuucaa ccagaaucug gaauaucaga uaggauacau augcaguggg 960

auuuucggag acaauccacg cccuaaugau aagacaggca guuguggucc aguaucgucu 1020

aauggagcaa auggaguaaa aggauuuuca uucaaauacg gcaauggugu uuggauaggg 1080

agaacuaaaa gcauuaguuc aagaaacggu uuugagauga uuugggaucc gaacggaugg 1140

acugggacag acaauaacuu cucaauaaag caagauaucg uaggaauaaa ugagugguca 1200

ggauauagcg ggaguuuugu ucagcaucca gaacuaacag ggcuggauug uauaagaccu 1260

ugcuucuggg uugaacuaau cagagggcga cccaaagaga acacaaucug gacuagcggg 1320

agcagcauau ccuuuugugg uguaaacagu gacacugugg guuggucuug gccggacggu 1380